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# BRITISH MEDICAL JOURNAL

JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

## SATURDAY JULY 22 1944


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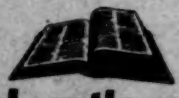


**Iodine Educational Bureau**

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 22 1944

# SOME PROBLEMS IN RIBOFLAVIN AND ALLIED DEFICIENCIES*

BY

HUGH S. STANNUS, M.D., Ph.D., F.R.C.P.

I have chosen as the subject of these lectures one which I think may be discussed with advantage just now when nutrition is a matter very much to the forefront in Britain, when the problem of malnutrition among the native inhabitants of our Colonies is still awaiting solution, and when plans for feeding the starving peoples of enemy-occupied countries are being considered. First, I shall discuss a syndrome recognized many years ago and then later further defined, and its relation to the condition to which the term "ariboflavinosis" was assigned by Sebrell and Butler (1938). I shall then suggest a tentative explanation of the pathogenesis of the signs and symptoms of riboflavin deficiency and of their peculiar localization, based on an anatomico-physiological consideration of the capillary vascular system. In this abridged form it will not be possible to do more than give an outline of my thesis, and much detail and full references will perforce be omitted.

## Early Personal Observations

Just over 30 years ago—in 1912–13—I published an account of the first outbreak of pellagra to be recognized in Africa, apart from Egypt, when I was afforded the opportunity of proving for the first time that that disease had no intrinsic relationship with the consumption of maize, as the subjects, long-term prisoners in Nyasaland, had been maintained on rice. I drew attention to a group of symptoms which tended to precede the onset of the more classical signs of pellagra by many months or which, indeed, persisted without those signs appearing. This group of symptoms included soreness of the tongue and lips, with a very characteristic lesion at the corners of the mouth, associated with a similar condition about the nostrils, the palpebral fissures, the free border of the prepuce, the vulva and anus, together with a dermatosis of the scrotum, often also involving the skin of the adjacent part of the thigh.

More important still, it was found that the syndrome above described, in its less fully developed form limited usually to the affection of the corners of the mouth, lips, and tongue, was not uncommon among the general native population. Further inquiries elicited the fact that this affection occurred in other parts of East Africa, and two interesting points came to light—first, that the condition, associated with obscure nervous symptoms, was common among native children at a mission boarding-school in Zanzibar; and, secondly, that their symptoms cleared up when they returned to their villages for the long vacation.

I had noted among my prison cases various neurological symptoms, including deafness and diminution of vision with loss of pupillary sphincter tone, but did not, at that time, associate them with the syndrome under discussion. I believed that pellagra and this syndrome were the result of dietetic deficiency; but these were early days, just about the time when Funk was engaged in preparing Factor B and when the word "vitamine" was introduced.

The importance of these early observations lay in the fact that this was the first time that attention had been drawn to the occurrence of this group of symptoms, due to a dietetic deficiency—dissociated from pellagra. Each, as a symptom occurring in pellagra, was in no way new, as a perusal of the writings of the older pellagrologists from Casal (1730) downwards will show.

In 1911 I drew attention to a long-forgotten description by Strachan (1888) of a condition among natives in Jamaica, believed by him to be "malarial multiple peripheral neuritis," in which mention is made of practically all the same symptoms; and in 1930 I pointed out the resemblances between a condition described by Scott (1918) as "central neuritis" of toxic origin, among Jamaican labourers, and the syndrome under discussion.

## Collected Observations

Later, in 1936, I collected together and reviewed a number of interesting observations which had been published in the meantime upon conditions which I considered were akin to the original syndrome. I used the expression "pellagra-like conditions" to focus attention upon malnutrition as the basis of causation. The close connexion was obvious then, as it is now, when we recognize the close relationship between nicotinic acid and riboflavin in the vitamin $B_2$ complex and the relation of each to pellagra.

Among these observations were a number which had reference to an affection only of the tongue, lips, and the angles of the mouth. These I shall not consider further. (Blacklock, Sierra Leone, 1925; Jamin, Tunisia, 1925; Nogue, Dakar, 1925; Mathis and Guillet, Dakar, 1925; Gayot, Dakar, 1920; Brocq and Paultrier, Fréjus, 1928, 1939; also Barlovatz, Congo, 1940.) It will not be possible either to discuss here the very interesting condition occurring among infants in East and West Africa and elsewhere which I have referred to as infantile pellagra, but in which riboflavin deficiency probably plays a major part.

The remainder, to which have been added a few published more recently, are shown in the Table (under D) for the sake of brevity. They constitute, I believe, a series showing manifestations of the same syndrome in more or less complete form. The disparities may be explained in part, I think, by the fact that in some cases the descriptions are not very full and are obviously incomplete, the period of observation is short, and opportunities for exhaustive examination are lacking. In other cases want of exact parallelism may be due to variations in the comparative intensity and duration of the causative process.

Fitzgerald Moore's observations are of particular importance, for to him belongs the credit of recognizing that the disease which was rendering thousands of natives nearly blind was due to a dietetic deficiency and was amenable to treatment with marmite. His first paper was published in 1930. From this and those published subsequently, and a number of personal communications, a fairly complete picture of the affection can be drawn—one that reproduces the original syndrome described, but unassociated in any way with the dermal and other classical symptoms of pellagra. The second communication of importance was that by Landor and Pallister in 1935. They



* The Lumleian Lectures (abridged) delivered before the Royal College of Physicians of London, April 18 and 20, 1944.

*Table showing Manifestations of the Syndrome according to Various Authors*

| | | | Tongue | Lips | Angular stomatitis | Nostrils | Canthi | Prepuce | Vulva | Anus | Scrotum | Groin | Face | Body | Vision | Hearing | C.N. System | Mental | Conjunctiva | Photophobia | Limbic Plexus | Corneal Vascularization | Mydriasis |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A. Stannus | Central Africa | 1911–13 | — | — | — | — | — | — | — | — | — | — | | | — | — | — | — | — | | | | — |
| B. Strachan | Jamaica | 1888 | — | — | — | — | — | — | — | — | — | | | — | — | — | — | — | | | | | |
| C. Scott | Jamaica | 1918 | — | — | — | | — | | — | | | | | | — | — | — | — | | | | | |
| D. Bradley | Seychelles | 1928 | — | — | — | | — | | — | | — | | | | — | — | | | | | | | |
| Wright | Sierra Leone | 1928 | — | — | — | | — | | | | — | | | — | — | — | — | | | | | | |
| Fitzgerald Moore | Nigeria | 1930 | — | — | — | — | — | — | | — | | — | | — | — | — | — | — | — | — | | | — |
| Fitzgerald | Assam | 1932 | — | — | — | | — | | | | | | | | | | — | | | | | | |
| Nicholls | Ceylon | 1933 | — | — | — | — | — | | | | | | — | | | | — | | | | | | |
| Dumont | Congo | 1934 | — | — | — | | — | | | | | | | | | | | | | | | | |
| Landor and Pallister | Malay | 1935 | — | — | — | | | | | | — | — | | | — | | — | — | | | | | |
| St. John | Barbadoes | 1936 | — | — | — | — | — | — | — | | — | — | — | — | — | | — | — | | | | | |
| Aykroyd *et al.* | India | 1936 | — | — | — | — | — | — | — | — | — | | | | | | | | | | | | |
| Meager | Solomons | 1936 | — | — | — | — | | | | | | | | | | | | | | | | | |
| Browne | British Guiana | 1939 | — | — | — | | — | | | | | | | | — | — | — | | | | | | |
| Wilkinson and King* | Hong Kong | 1944 | — | | — | | — | | | | — | | | | — | | — | | — | | | | |
| E | Spain | | — | — | — | — | | | | — | | | | | — | — | — | | — | | — | — | |
| F | United States | 1938–41 | — | — | — | — | | | — | | — | — | — | | — | | | | — | — | — | — | — |

* Published since these lectures were delivered.

described a condition which practically duplicated that recorded by Fitzgerald Moore. They showed that recovery took place when treatment with autoclaved yeast or autoclaved marmite was given. Fitzgerald Moore's cases also responded to the same preparations. This result excluded vitamin $B_1$ as a factor in causation. Fitzgerald Moore was also able to show that vitamin A played no part, and later that nicotinic acid had no curative effect. That author was more particularly interested in the ophthalmological condition. In early cases complaining of dimness of vision, with, or with a history of, sore lips and sore tongue, no changes were found in the fundi. Later, pallor of the temporal halves of the disks was noted, in some optic atrophy, in others signs of optic neuritis. Central scotoma and some retraction of fields were demonstrated in a few cases. Loss of pupillary tone and photophobia were also noted. The nervous symptoms, apart from loss of visual and auditory acuity, consisted of some mental dullness, a sense of muscular weakness, ataxia, and paraesthesiae.

It is of interest to recall the fact that Goldberger and Tanner in 1915 and 1925 produced experimentally some of the symptoms of this syndrome and referred to them as "pellagra sine pellagra," as I had previously done, but they were apparently unaware of my observations. It is also of interest to remark the similarity of the signs and symptoms in animals —the rat and the dog—but space will not allow of their discussion here.

At the end of 1938 Sebrell and Butler published their "preliminary note" on "Riboflavin Deficiency in Man." Nicotinic acid and riboflavin had then been isolated from vitamin $B_2$ complex. The results of experiments on animals fed riboflavin-free diets and certain observations on nicotinic-acid-treated pellagrins led these observers to repeat Goldberger and Tanner's feeding experiments. Of 18 women so treated 10 developed in from 94 to 130 days lesions on the lips, at the angles of the mouth, in the vestibule of the nose, etc., comparable to those described by Goldberger and Tanner and those described by myself—a fact which the authors immediately recognized. These lesions cleared up under treatment with riboflavin.

Thus then was given the first demonstration of the relationship of some part of the original syndrome with riboflavin deficiency. These authors suggested that "the term ariboflavinosis be added to the nomenclature of the vitamin-deficiency diseases as a designation for the clinical condition due to riboflavin deficiency." Since there is reason to believe that death ensues long before the advent of a-riboflavinosis, I prefer to use the term "hypo-riboflavinosis."

During the following three or four years other symptoms were added to the original "ariboflavinosis" syndrome by observers in the United States, chief among them being Sydenstricker and his colleagues, the diagnostic criterion in all cases being a response to riboflavin therapy.

Again, though there are differences between the symptoms and signs enumerated under ariboflavinosis and those included in the older syndrome, I think that they may be looked upon as differences in degree and that they may be explained along the lines above mentioned (see Table, F). Further, many of the groups of symptoms, combined into a series of overlapping syndromes due to malnutrition during the Civil War of 1936-9 —described by Spanish observers although, as they stated, unfamiliar to them—reproduced those which I have shown were recognized years before (see Table, E). The symptoms will be dealt with in greater detail when I come to speak of their pathogenesis.

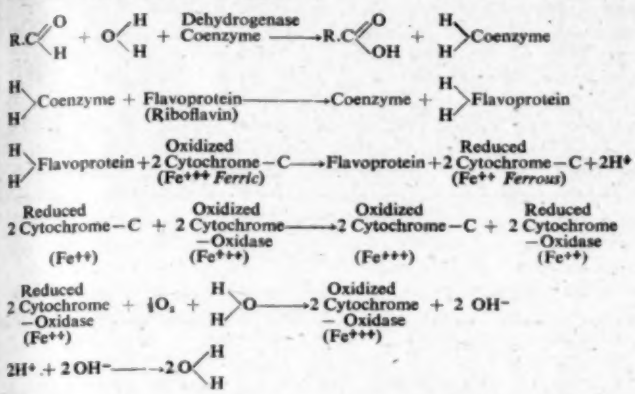
Although there are reasons, on epidemiological grounds, for believing that all the signs and symptoms I have grouped together should be considered as parts of a single clinical entity due to riboflavin deficiency, we cannot at the present time exclude the possibility that some other factor—perhaps some other member of the vitamin $B_2$ complex—plays a part. For the sake of brevity, however, in what follows I shall speak only of hypo-riboflavinosis.

## The Action of Riboflavin

Riboflavin is generally held to be present in the cells of every tissue of the body. Like other members of the B group of vitamins—not in themselves enzymes or catalysts, but components of chemical combinations, known as coenzymes, which in conjunction with specific proteins, the apo-enzymes, form a number of systems essential for the breakdown of carbohydrates with the release of energy little by little— riboflavin, combined in the form of a flavoprotein, acts by alternately accepting and releasing two atoms of hydrogen, and thus participates in a number of reactions in connexion with carbohydrate metabolism, and among them that which forms the link between the anaerobic dehydrogenase system and the aerobic cytochrome : cytochrome-oxidase : oxygen system. Oxidation may be defined as the change of an atom or ion from a state of lower valence to a state of higher valence. Reduction is the reverse. Oxidation in the sense of biological oxidation of carbohydrate may be effected by the addition of oxygen, by the removal of hydrogen, or by the withdrawal of one or more electrons (or negative charges), without the equivalent transfer of oxygen or hydrogen.

All the stages of the complicated series of processes involved in the release of energy from the carbohydrate molecule are not well understood, but the following schematic set of equations will serve to demonstrate the principle involved and

indicate the close association of riboflavin with the utilization of carbohydrate and oxygen.




Since riboflavin is associated with intracellular catalytic processes any deficiency may be expected to give rise to a metabolic disturbance in every cell of the body.

In the past it has been customary when thinking of any tissue merely to assume a cellular deficiency of riboflavin without considering how that deficiency comes about. I propose, therefore, to discuss some part of this problem.

### The Role of the Capillary System

Perhaps we do not always realize that the vascular system has been developed for a single purpose—that of carrying to the immediate environment of each individual cell all the essentials to satisfy its needs, thus creating an environment comparable to that of a unicellular organism. The actual living parts of complex organisms are embedded in a fluid matrix constituting an internal environment the constitution of which normally remains constant—a condition referred to as homoeostasis or homoeokinesis. Claude Bernard (1878) was the first to realize this truth, crystallized in his expression—"*La fixité du milieu intérieur est la condition de la vie libre.*" This theme was further developed by Cannon (1930), and later was the subject of discussion by Barcroft (1934). Mechanisms have been developed in the body whose sole object is the preservation of this constant. As stated by Cannon: "The membranes which separate the vascular from the interstitial compartment and those which separate the latter from the intracellular compartments have peculiarities of permeability which maintain an unequal distribution of solutes in the three compartments." Exchanges in one or other direction are effected by vascular adjustments controlled, it is now generally recognized, by a "capillariomotor system," independent of the rest of the vasomotor system, by hormones, by local metabolites, etc.

The capillary system is therefore of prime importance, its welfare essential for the maintenance of the tissues in health; yet when Krogh (1929) published his monograph, *The Anatomy and Physiology of the Capillaries*, he remarked: "The capillaries constitute the most essential part of the circulatory system," but added, "They have been neglected in an extraordinary way."

Much work has been done on the subject by a number of investigators, including Dale (1918–19), Krogh (1929), Lewis (1927), Bordley *et al.* (1938), Wright and Duryee (1933), the Clarks (1931–2), Sandison (1928), Cobb (1927–32), Zweifach (1937–40), Sanders, Ebert and Florey (1940), etc.; but space forbids anything but mention of their names.

I cannot here go into more detail, but must be content to point out how *great* is the part played by the capillary system, how *many* its functions in the economy of the organism, and how *vast* its field of action.

To give a single example from Krogh: he calculated that the capillaries supplying the muscles of an adult man, which number 1,350 per square millimetre in transverse section, would measure 100,000 kilometres if joined end to end—i.e., would go twice round the world. Their surface would be 6,300 square metres. A simple calculation shows that if packed into a solid mass these endothelial cells would form an organ of some size. The time has passed when the capillary endothelium was looked upon by the older physiologists as a passive, inert membrane, like a piece of gelatin governed only by simple physical laws. It is a tissue of great activity; it must need a considerable amount of energy in order to carry on its functions, yet nothing is known concerning the metabolism and respiration of its cells.

Many may have tacitly taken it for granted that a tissue which is in direct contact with the blood stream had merely to pick up what it wanted without any vital process being involved, but this is not consonant with Nature's methods. It may be assumed—and I think the assumption is warranted—that the endothelial cell respires in the same way as the cell of any other tissue, and that for its metabolic processes it must be supplied with sugar, oxygen, and all those other elements essential for cell life, including riboflavin. Having made this assumption, I am going to suggest that in the event of a deficiency in any one of these elements, or in some one of the elements—namely, riboflavin—the capillary endothelium will be one of the first, if not the first, of the tissues to suffer the effects of interference with normal respiration and metabolism. The result of this anoxia, in the wide sense of the term, upon the capillaries is a derangement of function, which I shall refer to as "capillary dysergia," with the development of loss of tone, dilatation, and decreased flow. This in turn leads to a disturbance in the surrounding *milieu intérieur* and so to a metabolic disorder of the cells of the neighbouring tissue.

It is generally agreed that the relative number of capillaries is such, and their disposition so devised, as to accommodate the metabolic needs of each tissue in the body. This being so, I have suggested that manifestations of riboflavin deficiency will become apparent first in those tissues with high metabolic activity and a high degree of capillarity. By capillarity I mean the relative number of capillaries normally present in a tissue. The signs will be capillary dilatation, obviously only to be determined in some tissues; the symptoms, impaired nutrition and impaired function of the tissues. It is upon this basis that I propose to offer an explanation of the nature and distribution of the signs and symptoms of hypo-riboflavinosis.

*(To be concluded)*

## TWO YEARS OF MILITARY PSYCHIATRY IN THE MIDDLE EAST

BY

**H. B. CRAIGIE, M.B., D.P.M.**

*Lieut.-Col., R.A.M.C.*

In his article "Three Years of Military Psychiatry in the United Kingdom" (*B.M.J.*, 1943, **1**, 1) Brigadier J. R. Rees has presented a general survey of Army psychiatry in this country, setting out its development and present tendencies. The present article gives a survey of Army psychiatry in its application to an expeditionary force engaged in an active theatre of war.

### Development and Organization

The development of a psychiatric organization in the Middle East dates from the appointment in Aug., 1940, of a Consulting Psychiatrist to the Middle East Force. The entry of Italy into the war in May, 1940, had marked the inception of a new phase in the military situation of the Middle East. With the arrival of large and constantly increasing drafts of men from all parts of the Empire it became evident that the provision of an adequate and organized psychiatric service was likely to become a matter of some urgency. The history of the psychiatric organization in the Middle East, originating as above, has been one of continued expansion. Before the arrival of the Consulting Psychiatrist no special facilities existed for the diagnosis and treatment of psychiatric cases, which were of necessity admitted either to the ordinary medical wards of a general hospital or, as in the case of psychotics, to small observation wards attached to two or three of the established military hospitals.

The situation in Aug., 1942, provided an interesting contrast. In place of the original limited observation wards there were by that date specialized psychiatric hospitals, centres, and psychiatric sections of convalescent depots. In addition to the original Army Consulting Psychiatrist, who, with the help of two specialists in psychiatry, was responsible for all the psychiatric cases arising not only in the Army but also in the Royal Navy, R.A.F., and the various Dominion and Allied troops, there were thirteen Army specialists in psychiatry and at least an equal number of graded specialists and medical officers solely engaged in psychiatric work, as well as psychiatrists attached to the other Services and the Dominion Forces.

In any consideration of the organization and work of the psychiatric services in the Middle East it is essential to realize the extent of the area concerned and the associated difficulties in travel and communication. The area included Egypt, Palestine, Syria, the Sudan, Eritrea and Abyssinia, Libya, Cyprus, and originally Iraq and Iran. The vastness of this area bore a direct relation not only to the problems arising in establishing a co-ordinated and organized psychiatric service itself but also to the problem of arranging for the evacuation of psychiatric cases; for example, the evacuation time between the forward areas in the Libyan campaign and a suitable base hospital or centre was rarely less than seven days, and was generally associated with a maximum degree of mental and physical stress and strain.

A second problem of very considerable practical importance was the wide diversity of races and nationalities encountered. During the course of 12 months in one centre alone, patients of the following nationalities were admitted (in addition to British and Dominion troops): French, Greek, Polish, Czechoslovak, Russian, Cypriot, Maltese, Palestinian (Jewish, Arab, and Christian), Turkish, Mauritian, Seychelles, Chinese, Portuguese, and various African races, including Kaffirs, Basutos, Bechuanas, Matabeles, Zulus, Swahilis, and Abyssinians. In addition German and Italian prisoners of war were admitted for treatment.

## Incidence

The actual numerical incidence of psychiatric breakdown was considerable; but, judged in relation to the total numbers involved and to the extreme degrees of mental and physical stress and strain present in so many cases, it was perhaps surprising—as Surg. Capt. Curran has recently pointed out in reviewing naval cases—not that so many but rather that so few breakdowns occur. It is clearly undesirable at this stage of the war to give statistics of actual figures in detail, but it may be stated that the annual incidence of neurosis in the Middle East during the last two years has shown no significant variation from the figures obtaining in the last war.

It must always be remembered, however, that statistics and percentages by themselves give a very partial and inadequate picture of the situation as a whole. The amount of time and difficulty involved in the handling, evacuation, and treatment of psychiatric casualties is often out of all proportion to the actual numbers involved; and the potentially "infective" nature of psychiatric casualties is always a factor of considerable importance. There can be little doubt that if adequate selection of personnel had been employed before men were sent to a battle area a very marked decrease in the incidence of neurotic breakdowns, and a great improvement in the prognosis when breakdown did occur, might reasonably have been expected.

The aetiology of psychiatric breakdown may best be considered under the two main headings of predisposing and precipitating factors.

## Predisposing Factors

### (*a*) Psychopathic Constitution

The very great importance and significance of a psychopathic constitution, both as an aetiological and as a prognostic factor, was shown repeatedly throughout the period under review. An analysis of all admissions to one psychiatric centre during a six-months period showed that no less than 21.7% of neurosis and 23.8% of psychosis cases had suffered from a previous neurotic or psychotic breakdown; these percentages were even more marked in regard to officers, among whom, in the same series, 46.2% of neurosis and 37.5% of psychosis cases had had a previous breakdown. A further analysis of the same series showed that, in addition, 38% of all anxiety neurosis and 33% of all hysteria cases showed evidence of markedly abnormal personalities before their present breakdown. The term "markedly abnormal" is here used advisedly: all these patients had shown evidence of relatively gross psychopathic traits in their previous histories, usually extending over a period of many years and dating from childhood and adolescence. These psychopathic traits were all of an accepted, obvious, and easily recognizable type, such as would have been clearly revealed by any careful case history; they did not rest on any abstruse or controversial psychopathological theory.

The significance of a psychopathic previous history was shown at every stage of the individual's military career. Many of these men broke down under the initial stress of embarkation for over-seas or during the voyage; and many required admission to hospital immediately upon arrival in the Middle East (thus 36 cases were admitted direct from convoys to one centre alone during the second quarter of 1942). A much larger number of individuals of this type broke down within a few weeks of arrival, and were completely unable to readjust themselves to the conditions of oversea service. An even larger proportion broke down before ever reaching a forward area. Cases of neurotic breakdown can conveniently be differentiated into cases of "battle neurosis" (cases breaking down under the stress of battle) and "neurotic sick" (cases occurring without relation to battle stress). An analysis of one large series of cases showed that 79% of the neurotic sick had a bad previous history, as against only 22% of the battle neurotics.

These factors are of the highest importance, because in the elimination of the misfits, of the chronic neurotics, and of the psychopaths lies the most direct and most hopeful method of prevention available to us. Very little can be done in an actual battle area to limit or alleviate the stresses and strains or to alter the adverse environment; and, given sufficient stress and strain, *any* person *may* break down. We can, however, and we should, sift out those who are likely to break down early—the weaker brethren, those who can cause difficulties and disharmonies and perhaps even disasters out of all proportion to their numbers, and whose presence constitutes a continued if only a potential menace to the morale of the group as a whole.

### (*b*) Psychopathic Family History; (*c*) Morale

The significance of a psychopathic family history, although rather more difficult to assess, should not be underestimated; approximately one in five of all admissions in the above series showed evidence of a markedly psychopathic family history.

The question of morale, with all its implications, was of course of fundamental importance: faulty morale, indifferent training, or poor discipline provided a fruitful soil for the development of psychiatric breakdown. The series of African campaigns has proved beyond all shadow of doubt that half-trained, irresolute, incompetent men are useless in modern battles. The modern soldier, more perhaps than ever before, has got to be alert, competent in the use of arms of several varieties, self-sufficient, and resolute in situations in which he must act alone—situations often encountered by the need for dispersal.

## Precipitating Factors

### (*a*) General

*Domestic Separation.*—The disruption of family life, the impossibility of obtaining home leave, and the prospect of indefinite separation from the home and family were factors of the greatest importance, especially if—as was often the case—there was associated anxiety over illness of relatives, financial stress, rumours of marital infidelity, or news of enemy air raids near the individual's home. Much anxiety was felt throughout the command during the Battle of Britain, and quite a large number of serious breakdowns were precipitated by the news of certain towns at home having been bombed. These facts are perhaps of additional significance in the light of the recent R.A.F. offensive against the Ruhr. In this

connexion the very great importance of a regular and reasonably rapid mail service was in constant evidence—delay, irregularities, or non-arrival of mail were potent causes of anxiety and depression even in the most stable personalities.

*Climate.*—The trying climatic conditions prevailing in the Middle East—extremes of heat, shortage of water, flies, sand, and dust—were all important precipitating factors; on the other hand, it should be stressed that the effect of climate and temperature is essentially indirect, and is not in itself a direct cause of psychiatric breakdown: such terms as "tropical neurasthenia" are misleading, and are best avoided.

### (*b*) Battle Stress

The term "battle neuroses" was, as already stated, applied to those cases of neurosis precipitated by the actual conditions of battle. Any of the above more general factors were, of course, liable to be associated in varying degree in the causation of battle neuroses, especially when combined with prolonged loss of sleep and extremes of physical stress and fatigue; and, conversely, the fact that the breakdown occurred during battle does not necessarily indicate that these battle conditions were in themselves more than incidental factors in the causation. In the great majority of cases of battle neuroses, however, the immediate precipitating factors could be accepted as being the actual conditions of enemy action.

The nature of the battle stress varied considerably with the theatre of operations concerned. In many cases the first symptoms of breakdown had appeared after the campaigns in Norway and France; in others, in East Africa or Syria. The majority of cases originated during the various Libyan campaigns or during the evacuation of Greece and Crete; or, in naval cases, during the course of the long and arduous naval operations in the Eastern Mediterranean. Without any question the most important single precipitating factor in the production of battle neurosis was continued dive-bombing or machine-gunning from the air, in the absence or relative absence of aerial protection, and most particularly when experienced under conditions of inactivity without the possibility of retaliation. The importance of this form of attack was shown repeatedly, and was out of all proportion to the actual number of fatalities caused.

The importance of the above factors was most pronounced during the earlier stages of the campaign, especially during the evacuation of Greece and Crete.

Table I shows the percentage of total cases (in a series of 633 consecutive admissions to one psychiatric centre) resulting from battle stress in the varying types of neurosis: figures for certain psychotic reactions, associated in origin with severe battle stress, are given for purposes of comparison.

TABLE I

| | % |
|---|---|
| Anxiety neuroses | 63.2 |
| Hysteria | 26.8 |
| Other neuroses | 19.0 |
| Schizophrenia | 25.4 |
| Manic-depressive psychosis | 7.7 |

The actual degree of battle stress varied, of course, very widely, ranging from sporadic high-level bombing to prolonged shelling, repeated immersions (in naval cases), and similar forms of severe stress. It is, however, of importance to note that breakdown from battle conditions was throughout the period relatively uncommon, and has become increasingly less frequent.

## Clinical Types

*Physical Exhaustion.*—A recent analysis of battle casualties evacuated from a forward area showed that four out of five cases classed as "N.Y.D.N." were in reality cases of fatigue and exhaustion, and were without any deeper psychiatric significance. The importance, from the point of view of both prognosis and disposal, of establishing the true nature of these cases has been recognized in the revised *Nomenclature of Mental Diseases*, now in official use in the Army.

*Neuroses.*—The largest group of cases included under this title were those of anxiety neurosis, which accounted for over two-thirds of the total neurosis cases. Hysterical reactions occurred less commonly, accounting for approximately 20% of total neurosis cases. Experience in the Middle East therefore confirms the experience of other observers—that hysterical conditions are very much less frequent in this than in the 1914–18 war.

*Anxiety Neurosis.*—In the acute anxiety reactions precipitated by battle stress, disorders of behaviour were often prominent: acute panic reactions were common, often associated with episodes of extreme aggression or even violence. Semi-stuporous states were also of frequent occurrence. A querulous, resentful, anti-social attitude was often found in anxiety neurotics under treatment. Table II shows the percentage incidence of the main presenting symptoms in a group of 215 anxiety neurosis cases admitted consecutively to one centre:

TABLE II

| | % |
|---|---|
| Depression | 48.8 |
| Anxiety | 47.0 |
| Headaches | 42.3 |
| Insomnia | 38.3 |
| Cardiovascular symptoms | 30.5 |
| Gross tremors | 25.8 |
| Gastro-intestinal symptoms | 22.0 |
| Acute panic reactions | 22.0 |
| Lassitude | 19.7 |
| Associated hysterical reactions | 16.5 |
| Phobias | 11.2 |
| Lack of concentration | 11.2 |
| Memory defects | 4.7 |
| Frequency of micturition | 3.7 |

The above analysis makes no pretence to scientific accuracy either in terminology or in other ways, but it is perhaps of interest as a rough index of the relative frequency of the common symptoms. Two points of interest emerge from a study of these figures—the predominance of depression as a symptom, and the relative infrequency of psychosomatic symptoms of the cardiovascular type. The importance of depression as a presenting symptom was, in fact, even more marked than the above figures suggest, inasmuch as a certain group of cases usually diagnosed as anxiety neurosis had in the above series been classified separately as "reactive depression."

*Hysteria.*—Table III shows the relative frequency of occurrence of the main symptoms in a group of 71 hysterical cases admitted consecutively to one centre:

TABLE III

| | % |
|---|---|
| Amnesia | 21.0 |
| Convulsions | 19.6 |
| Paresis or paralysis | 18.2 |
| Fugues | 14.0 |
| Blindness | 5.6 |
| Vomiting | 5.6 |
| Involuntary movements | 4.2 |
| Somnambulism | 2.8 |

The cases of dissociation—amnesias and fugues—thus constitute the largest group (35%), and are commoner than cases of the conversion type.

*Psychopathic Personality.*—These cases accounted for approximately 6% of the total neurosis admissions to one centre; as might be expected, however, the difficulties presented by individual members of the group in treatment and disposal more than compensated for any numerical inferiority. It is notable, and in keeping with experience, that less than 10% of these cases were associated in origin with actual enemy action. One special group of these cases—the homosexuals—presented problems of especial difficulty in the Middle East, in relation both to treatment and to disposal; apart, however, from stressing the inadvisability of sending innate homosexuals (if diagnosed) to the Middle East or to any similar oversea station, it is not possible here to enter into any more detailed discussion of the clinical aspect of these cases.

*Obsessional Neurosis.*—Fully developed obsessional states were rare, but, when they did occur, were usually of unfavourable import and unlikely to respond to ordinary forms of treatment.

*Psychoses.*—The total number of psychotic cases admitted to hospitals and centres was considerably in excess of expectation. This excess could be explained by various factors—the most important being the wide variety of nationalities encountered, including large numbers of coloured troops, in whom the correct assessment and diagnosis of disorders of behaviour presented many difficulties.

*Schizophrenia.*—This was by far the most frequent psychotic reaction, accounting for rather more than 50% of the total psychotic cases. As noted during the last war, schizophrenic reactions developing during war were often of a more benign type than those developing under the more ordinary conditions of civil life.

*Manic-depressive Psychosis.*—Cases of manic-depressive psychosis accounted for approximately 30% of all psychotic cases; mania and melancholia were the presenting phases in an approximately equal number of cases.

*Other Psychoses.*—Psychoses attributable to infection (either acute or chronic) were uncommon. A very small number of cases of cerebral malaria occurred, and only one case of dementia paralytica (a Cypriot) was found in a series of over 1,200 admissions to one centre. Mental symptoms associated with heat hyperpyrexia were seen in a few cases, but in only one case in the above series was there any serious residual mental abnormality. A large number of

cases of pellagra were seen on one occasion among native troops; it was difficult to assess the degree of mental abnormality, if any, in these cases owing to language difficulties, but there was no evidence of behaviour disorders or gross mental change. Alcoholism in its various manifestations was fairly common, ranging from acute alcoholic episodes to chronic alcoholism and delirium tremens. Cases of psychosis in association with drug addiction were rare, consisting mostly of hashish addiction among the local native troops. A stuporous state lasting from 24 to 48 hours, and resulting from the consumption of "doped" alcohol in certain of the local establishments, was at one time fairly common, and led at first to some difficulties in diagnosis. Although epilepsy was fairly common, epileptic psychosis was rare.

*Head Injury.*—Psychosis associated with cerebral trauma was uncommon. The series of 633 admissions to one centre included only eight cases of post-traumatic personality change; this figure is, however, to some extent misleading, as the great majority of head-injury cases were admitted to and treated in the special neuro-surgical centre, and in consequence only cases with gross mental change were likely to be admitted to a psychiatric centre. From the somewhat restricted experience of post-concussional and head-injury cases gained at a psychiatric centre, the general impression was obtained that such cases are unsuited for service in tropical or subtropical climates.

*Intellectual Defect.*—Cases of congenital mental deficiency or of mental dullness and backwardness were unduly common, especially during the earlier part of the period under review. In the above series of 633 admissions there were 14 cases of mental dullness and backwardness and 27 cases of mental deficiency; of the mental defectives 23 were of the higher-grade, 2 of the medium-grade, and 2 of the lower-grade feeble-minded type. In seven cases there was a long record of delinquency and three had been certified as mental defectives before enlistment. The total number of mentally defective or dull and backward cases was very much greater than that given above, as many such cases were disposed of as out-patients and did not require admission to hospital. The following example provides a rather significant instance of this:

> Twenty-seven men out of a draft of 80 posted to a certain unit were considered by the commanding officer as unfit to carry out the specialized duties required in this unit. On the advice of the unit medical officer they were referred to a psychiatric centre for an opinion. As a result of a careful and detailed investigation of each case, combined with intelligence tests, 7 were found to be higher-grade feeble-minded defectives; 11 were mentally dull and backward, and a further 6 were of subnormal intelligence, and unfitted for any form of specialized training.

*Delinquency.*—An increasingly large number of delinquents were referred to psychiatric hospitals or centres for an opinion, ranging in degree from the mildest cases of "absence without leave" to hardened recidivism. The commonest type of case, and the type that presented the greatest difficulty in diagnosis, was that in which a state of amnesia or fugue was put forward as a defence for absence without leave or desertion.

*Malingering.*—Deliberate malingering was in our experience rare; there were, however, the usual number of somewhat dubious border-line cases, which caused certain difficulties in diagnosis.

## Treatment

In a general survey of this nature it is possible to give only a very brief summary of the various forms of treatment employed, and the principles underlying their application. In no field of medicine, and more particularly of military medicine, is the dictum "Prevention is better than cure" more applicable than in the handling and treatment of cases of psychiatric breakdown. It is far too late to start preventive measures—to develop selection of personnel, in other words—in an actual theatre of war; the best selection in these circumstances tends to be a haphazard and fortuitous process, and more often it will resemble a process of salvage rather than selection.

Selection, then, should start before entry into the Army; it should continue throughout the stage of training; and it should apply particularly to all drafts for oversea service, most particularly of all for oversea service in an active theatre of war. It should always be remembered that a soldier may be called into action the moment he arrives in a new country, often with little or no possibility of adaptation to a strange land, to a trying climate, or to the stresses and hazards of active warfare. It is useless to send men over-seas where their previous history indicates that early breakdown is likely—and this applies not only to cases of neurosis but to chronic delinquents: it was the somewhat bitter experience of most observers—combatant officers as well as psychiatrists—that the character of the delinquent does not undergo any curious reformation or metamorphosis on leaving these shores. However careful selection may be, a certain number of cases of psychiatric breakdown will continue to occur, although here again much will depend on the general morale and *esprit de corps*, and on the training and efficiency, of the unit as a whole.

The conditions of present-day warfare, especially in the desert, present much difficulty in the handling and treatment of psychiatric casualties. Evacuation is lengthy, involved, arduous, and exacting; opportunities for adequate treatment in the field are few and the difficulties of such treatment may seem at times overwhelming. On the other hand, the further back a psychiatric casualty is evacuated the less is the probability of his ultimate return, the worse is the prognosis as regards his ultimate efficiency as a soldier, and the more serious may be the effect upon the other members of the unit.

Treatment therefore must be immediate; its application must be measured in terms of minutes rather than hours, and of hours rather than days. It must be immediately effective, and it must remain effective. It must be simple, uncomplicated, and at the disposal of every R.M.O. It is unlikely that specialist advice will be available in more than a small percentage of cases, and the R.M.O. must therefore have a working knowledge of their diagnosis and treatment. The only feasible method of immediate treatment is by physical measures; the cardinal factor throughout is rest, and in these circumstances rest can only be procured by full sedation. The choice of sedative depends on various factors, one of the most important naturally being the range of drugs actually available. Alcohol and morphine are of use in emergencies, but the small bulk and ease of administration of the barbiturates (e.g., barbitone or phenobarbitone) make these drugs the most generally acceptable. Intramuscular injections should be given where necessary. The dosage *must* be adequate; too little is usually given, and it is important that adequate sedation be maintained throughout the period of evacuation to the base, if such evacuation should prove necessary.

The methods of treatment applied in the later stages do not differ materially from those applied to the neuroses in general. Prolonged narcosis was used extensively in the treatment of acute anxiety states in base centres and hospitals, and was found in most cases to be the method of election. It is of some importance to note that prolonged narcosis presents certain dangers in tropical or subtropical climates, and several cases of hyperpyrexia occurred during treatment, presumably due to disturbance of the heat-regulating mechanism.

The intravenous injection of a suitable barbiturate, reinforced by suggestion and the appropriate psychotherapeutic measures, proved a most valuable form of treatment in effecting the removal of conversion symptoms or the restoration of memory in hysterical amnesias or fugues; in many cases the early application of these measures restored function and allowed of return to duty without evacuating the patient to the base.

Emphasis has been laid above on physical methods, which, indeed, provide the only practicable form of first-aid treatment in the great majority of cases in a forward area. In the psychiatric hospitals and centres at the base a much wider scope and range of treatment was available and used. Psychotherapy was employed—usually in its simpler forms—in all cases, and under the general heading of psychotherapy may be included the invaluable help rendered in many cases by the chaplains of the various denominations and by such organizations as the S.S.A.F.A. Fully equipped occupational departments were provided in each centre as well as the various recreational activities and excellent libraries provided by the B.R.C.S. The importance of semi-military training in the treatment of neurosis cases, not only for its own sake but as a preparation for return to duty, was recognized, and such training was used to an increasing extent. An insistence on a reasonable degree of military discipline in the treatment of neurosis cases in general was considered of great importance, and produced very beneficial results.

## Prognosis: Results of Treatment

It was decided at the beginning of the period under review that as a matter of general policy it was of the utmost impor-

tance to retain, so far as was possible, all cases in the command on at least some form of duty, and to confine evacuation out of the command to psychotic cases and those neurosis cases in which, for various reasons, the ultimate prognosis was regarded as very unfavourable. As a result of practical experience this policy was further developed, and it was decided that psychotic cases, after recovery and if considered suitable on other grounds, should also be retained in the command. This rather radical revision of policy in the case of psychotics was adopted only after careful consideration, but has already proved successful in practice.

The following statistics are of interest in assessing the prognosis and the results of treatment. In a series of 350 consecutive cases of neurosis discharged from one psychiatric centre during the six-months period July to Dec., 1941, 71.5% were returned to duty (53.7% to full, 17.8% to base duties); the average duration of stay in hospital for these cases was 25 days. During the three-months period April to June, 1942, 625 neurotic and 216 psychotic cases were discharged from one hospital; of the former group 92% were returned to duty (61% to full, 31% to base duties); of the latter 70% were returned to duty (48% to full, 22% to base duties).

*Follow-up.*—A careful follow-up system was employed throughout the period under review. An analysis of the results of the follow-up suggested that not more than 5 or 6% of cases required readmission to hospital or centre; this figure compares satisfactorily with those given for the war of 1914–18. It should be remembered that such cases of relapse as do occur do not necessarily represent a pure loss to the Services; during the interval before relapse occurs they may be, and in very many cases were, of the greatest value to the Army.

### Conclusions

The results obtained during the two-year period under review have been reassuring, and the high proportion of patients returned to duty has demonstrated the practical value of specialized psychiatric units and treatment. The indifferent quality of many of the drafts sent over-seas was often only too obvious, and has been indicated in some detail in the earlier sections of this paper; not only were many of these men unsuitable for service over-seas, but in many instances they were, as has been stated elsewhere, "candidates for hospital treatment on enlistment." It is clear that the efficiency of an expeditionary force must suffer if it includes large numbers of officers and men who, by virtue of their previous histories, are likely to develop a psychiatric breakdown.

The value of an organized system of personnel selection was thus shown in a very practical form throughout this two-year period, and it is difficult to avoid the conclusion that, had the system of personnel selection which is now applied to all recruits on joining the Army been applied from the beginning of the war, a very large proportion of the psychiatric casualties in the Middle East would have been avoided.

### Summary

An account is given of the organization and development of the psychiatric service in the Middle East Force.

Details of the incidence of psychiatric breakdown in the Middle East Forces are provided.

The various aetiological factors are discussed, with particular reference to the significance of a psychopathic previous history in determining the likelihood of future breakdown.

A brief account is given of the various types of clinical cases encountered.

Details are presented of the main forms of treatment employed.

An analysis is given of the results of treatment, with details of the percentages of cases returned to duty.

The very great importance of personnel selection is stressed.

I wish to record my gratitude to Brig. G. W. B. James, *M.C.*, Consulting Psychiatrist, Middle East Force, to whose inspiration, energy, and wide understanding the organization and developments described above are due, for his advice in the preparation of and his permission to publish this paper; to Brig. H. A. Sandiford, *M.C.*, Director of Army Psychiatry, and Brig. J. R. Rees, Consulting Psychiatrist to the Army, for their continual encouragement and assistance; and to the medical and nursing staff and the R.A.M.C. personnel of No. 1 Psychiatric Centre, M.E.F., whose enthusiasm and co-operation made possible so many of the results detailed above.

# DIAGNOSIS AND TREATMENT OF LESIONS DUE TO VESICANTS

BY

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In spite of the increasing air superiority of the United Nations the possibility of gas being used in this war cannot be ignored. The enemy might use it during any critical stage of military operations. Moreover, it would be dangerous to assume that we shall never see any cases suffering from the effects of gas, as they may result from accidents which occur from time to time. Methods of defence rapidly overtake new and unexpected methods of attack, so that no weapon ever again achieves its initial success. Had the Germans appreciated the success of their first gas attack in the last war the final result might have been very different. Should gas be used we can expect it on a large scale, with indiscriminate mixing of blister, choking, and harassing varieties—the characteristic smell possibly being disguised—plus high-explosive and incendiary bombs. With this in mind, it is important to simplify the anti-gas teaching, so far as is possible, reliance being placed on a few common-sense principles.

The gas discipline of the Services has received a great deal of attention and is so good that nothing but a nuisance effect is likely to be achieved against them. Civilians, however, who have not received special training are likely to be far more vulnerable, and the effect of panic must not be overlooked. It is essential for the able-bodied to help themselves by means of the gas-mask, removal of clothes, and immediate treatment with ointment, leaving the official anti-gas parties free to handle those who cannot help themselves.

The first attack may be at night, and if the action of the gas is a delayed one its presence may not at once be recognized. In consequence, the medical profession will be faced with a large number of cases suffering from lesions of the eyes, respiratory tract, and skin, some hours after the time for effective prophylactic treatment has passed. Subsequent attacks will be countered more easily, as the population will be prepared and suitable prophylactic measures can be taken immediately.

In order that protection may be available at the earliest moment the clinical diagnosis of the first cases is most important, and will largely be the doctors' responsibility. If the doctor suspects gas has been used he should at once get in touch with the nearest A.R.P. Report and Control Centre, whose responsibility it is, so as to obtain confirmation from their Gas Identification Officer. We must remember that the lethal effects of any gas are most commonly produced by inhalation, the next most serious danger being injury to the eyes. Skin lesions, although a major nuisance, will cause less loss of life than similar conditions due to thermal burns, and are certainly less severe than the injuries caused by high explosives. The gas-mask must always be the first line of defence, and it is important never to lose sight of this when devising other methods for prophylaxis. The immediate removal of contaminated clothing is equally important, as it reduces the risk of injury to the person concerned and the possibility of spreading the material to others.

## MUSTARD GAS

### Prophylaxis

*Eyes.*—Constant protection of the eyes by the eye-shield or gas-mask is of first importance. If liquid should enter the eye immediate mechanical removal by copious washing with water, saline, or other bland fluid is essential. If carried out within two to three minutes of contamination it will probably save the eye; if delayed for longer it is of little value. Care must be taken to see that material from the surrounding skin is not washed into the eye. However, if the eye is affected only by vapour, washing will do more harm than good. So much stress has been laid on the importance of early irrigation of the eyes that there is a tendency to forget that it is equally important to get rid of contaminated clothing. If help is available the two should be done coincidently.

*General Principles for Skin Cleansing.*—Three methods are available—mechanical removal, dilution and removal by washing, or chemical neutralization—before the vesicant can penetrate and produce its local and systemic effects. As the effective dosage of liquid

vesicant is very small mechanical removal can never be completely efficient. Washing must be prolonged, with many changes of water, and the danger of spreading the vesicant rather than eliminating it is very great. In many cases the gas-mask must be removed in order to wash the whole body effectively, with consequent risk to the eyes and chest. Chemical neutralization must therefore be the method of choice, followed, if possible, by bathing.

In the last war mustard gas was the vesicant used and bleach cream the most readily available antidote. At the beginning of this war the authorities took steps to provide facilities for treatment by bleach cream on a large scale. However, the difficulty of doing this comprehensively is obvious. To be completely effective the bleach cream must be freshly prepared and be applied with the bare hands immediately after contamination. It is equally important to remove it by washing, as it is a severe skin irritant—a point which is often overlooked. Another disadvantage of bleach cream is that it is not readily portable and does not keep. Subsequently, anti-gas ointments were introduced for use in the field, as they could be carried easily and had good keeping qualities. Anti-gas ointment No. 1 is excellent against mustard gas, but is of little use against lewisite. Because of its skin irritancy it has to be washed off after use. It has been rendered obsolete by better ointments which deal with both mustard gas and lewisite. Anti-gas ointment No. 2, which is on sale to the public, is very effective, but becomes irritating if covered with clothes or bandages. Subsequent numbers now being prepared, but not at present available to the public, have the advantage of being innocuous to the skin, though not more effective than No. 2.

When handling a contaminated case there are two points to be considered: first, the avoidance of injury to the contaminated person; and, second, the prevention of transference to others. Avoidance of injury will depend on the immediate removal of clothing if it has liquid on it or has been worn in an atmosphere containing vesicant vapour, followed by suitable treatment of the contaminated skin. Transference to others will be avoided by suitable treatment of discarded contaminated clothing. The danger of transference from the skin of a patient is negligible unless actual liquid is visible. In fact, if you cannot see anything on the skin it is safe to assume that absorption or evaporation has taken place and the patient can be handled with comparative immunity, particularly if the hands are first protected with anti-gas ointment. No chemical neutralization should ever be carried out if actual lesions are developing, as such treatment will increase the severity of the final lesions; at this stage careful washing with an antiseptic solution is the only useful treatment. The condition of the patient is of first importance, and cleansing only a secondary consideration: better the contaminated living than the decontaminated dead.

Hair contaminated by liquid mustard gas should be treated with bleach cream followed by washing (or by rubbing in anti-gas ointment, which may then be washed off, or removed by kerosene if this is available). In some cases, to facilitate treatment it may be necessary to remove the hair. If the patient is injured and contaminated, clothing may be removed and ointment applied to the skin, always bearing in mind the danger of increasing the shock. Removal of mustard gas from the damaged tissues is a problem that will have to be left in the hands of the surgeon. It is worth while to remember that neutral hyperchlorite solution (1% available chlorine) has some value as a decontaminant.

## Diagnosis

It must be borne in mind that exposure to vapour of vesicant gas affects the organs in the following order of susceptibility: eyes and alimentary tract, respiratory tract, skin, general system. The severity of the lesion is dependent on the concentration and the length of exposure, so that liquid for a short time, or vapour for a long time, can produce identical effects. Without protection or prophylactic treatment multiple injuries of varying degrees will occur.

*Eyes.*—The initial effect of mustard gas in the eye is negligible even on the entry of liquid. The onset of symptoms occurs a few hours after exposure. The eyes become irritable and severe pricking pain develops: lacrimation, photophobia, and blepharospasm are the usual symptoms of mustard gas keratitis. The physical signs usually seen are redness and swelling of the lids, congestion of the conjunctiva, and corneal haze, which can be seen by the naked eye in the more severe cases, but which is visible only by slit-lamp examination in the milder ones.

*Alimentary Tract.*—Epigastric pain, vomiting, and diarrhoea occur coincidently with the eye symptoms, but tend to settle rapidly in most cases.

*Respiratory Tract.*—Sore throat develops in 12 to 24 hours after exposure, with a dry irritating cough. Subsequently vesicles may appear on the soft palate and the fauces. Later the voice is lost, and in bad cases ulceration of the trachea and upper bronchi follows. Bronchopneumonia and any form of septic lung condition (bronchiectasis, lung abscess, etc.) may occur in severe cases. It is important, if anaesthesia is contemplated, to remember the delayed action on the respiratory tract. The use of ether at this stage will certainly increase the severity of the lung condition when it declares itself.

*Skin.*—Irritation and redness appear 6 to 8 hours after exposure, followed by erythema, marked oedema, and finally vesication. In vapour exposures the genitalia are particularly vulnerable. In the most severe skin cases large white areas like pigskin, with surrounding groups of vesicles, are encountered, the most characteristic feature being the wide area of erythema and oedema surrounding each blister. Small blisters may at first appear and later join together to form large flabby bullae which are easily ruptured. Crops of blisters may occur up to the tenth day after exposure. Invariably there is a characteristic purplish discoloration of the affected skin and itching. Brown pigmentation may occur after healing and persist for a long time. When large areas are involved a condition closely resembling shock, with a low blood pressure and haemoconcentration, is not uncommon.

*Systemic Effects.*—In severe cases the bone marrow may be affected, with development of an agranulocytic type of anaemia. Damage to the liver and kidneys is also recorded.

## Treatment

*Eyes.*—Immediate and copious irrigation of the eyes is of the utmost importance in the event of liquid contamination, and has already been stressed under "Prophylaxis." Once the initial irrigation has been carried out it should not be repeated, either for liquid or for vapour contamination, as it does more harm than good. If the eye is painful relief is best obtained by the use of a mydriatic—either atropine 1% or hyoscine 0.5%—instilled two or three times a day until the pupil is fully dilated, whereupon it should be stopped unless relapses occur with contraction of the pupil. If dilatation does not take place readily a specialist's advice should be sought. Bandaging the eye should be avoided, but the use of a paper or cardboard shade is comforting. Sulphacetamide (albucid) drops may be used in the early stages as they minimize the risk of secondary infection and are comforting, but once full dilatation of the pupil has been attained the pain disappears. Local analgesics are best avoided, but a central narcotic may be indicated in the early stages, before dilatation of the pupil. Antiseptics should be avoided as they tend to injure the already oedematous corneal epithelium. The copious discharge, which has the appearance of pus but in fact rarely contains bacteria, will usually disappear in 3 to 4 days if the pupils are kept dilated. Crusts round the lids can be removed with cotton-wool swabs and paraffin applied along the lid margins to prevent sticking. The psychological effect of an injury to the eye is considerable, so every effort should be made to reassure the patient by showing him that he has not lost his sight and by persuading him to return to a normal life at the earliest opportunity. The subsequent treatment of the complications should always be in the hands of an ophthalmic specialist.

*Alimentary Tract.*—As there is no specific treatment for the abdominal pain and vomiting they must be symptomatically dealt with.

*Respiratory Tract.*—The cough may be controlled with codeine and inhalation of tinct. benz. co. The use of sulphonamides should be reserved for the treatment of infective lung conditions. It is probably unwise to employ them prophylactically, as the majority of mild cases make an uninterrupted recovery.

*Systemic Effects.*—Particular attention should be paid to the condition of the blood; as with any extensive burn, haemoconcentration will call for plasma. The onset of agranulocytosis is marked by an early leucocytosis followed by a leucopenia which may appear as quickly as the third day after exposure. If the use of sulphonamides is contemplated blood counts must be done repeatedly to make certain that agranulocytic changes are not taking place. During administration the fluid intake must be sufficient to ensure the passage of 1,000 c.cm. of urine a day.

*Skin.*—There is nothing mysterious about the treatment of the skin lesions. They are slow to heal, prone to sepsis, and respond badly to any form of tanning treatment. As is the case with the treatment of thermal burns, avoidance of sepsis, rest of the injured part, control of oedema, and relief of pain are the four principles which must be constantly kept in mind. Resort to any form of prophylactic ointment when a lesion is visible is to be condemned. The exudate from the blister is innocuous. Before starting treatment remove hair with clippers. The question of what should be done with the blistered skin is a difficult one and must depend on the condition of the blisters when first seen. Leaving the skin intact has the advantage of reducing pain, preventing excessive exudation, and shortening the time of healing. There is no doubt about its value in small uncomplicated cases. However, the presence of dead skin in the later stages of treatment, or of skin that is detached and not covering the raw area, will encourage sepsis, so it should be removed. Aspiration of tense intact blisters is usually advisable. In all cases the affected part should be cleansed by gentle washing

with soap and water, or a bland antiseptic such as 8% dettol or 1% cetavlon. If the latter is used the part should be washed with normal saline before any dressing is applied. This should be followed by the application of sterile oily dressings, such as tulle gras, vaselined gauze, paraffin, cod-liver oil, arachis oil, etc. Amyl salicylate is a very comfortable dressing, but cannot be used on the face or genitalia, or when the blisters are broken. However, it is of considerable value in reducing oedema in the first four days of treatment. Sterile sulphanilamide 3 to 5%, incorporated in the dressings, or powdered on to the affected area before the dressing is applied, will help to combat subsequent infection in areas where it is likely to develop. It should not, however, be used as a prophylactic routine over large areas, as the danger of absorption subsequently increasing the agranulocytic changes is always present. The lesions are likely to increase and the exudate from them is considerable during the first few days, so care must always be taken to see that the dressings are adequate in size and thickness and that they are held in position by bandages. Reasonable pressure helps to immobilize the part and so controls the exudate. Sticking-plaster should be studiously avoided. Dressings should be changed as seldom as is compatible with the patient's comfort.

Subsequent treatment will depend on the progress, but it should follow the lines which would be adopted with lesions of a similar appearance due to other causes, such as thermal burns and septic conditions of the skin. The value of covering the raw granulating area with perforated oiled silk, cut to the right size and held in position by a layer of zinc ointment, applied to the normal surrounding skin, is considerable. It is comfortable, the exudate can escape easily, and dressings can be changed without damage to the new granulations, as the oiled silk can be left *in situ* for many days without disturbance. It may be necessary to resort to a skin graft in the third-degree cases in which large areas are involved; but this, of course, will be impossible until the slough has separated and the sepsis has been controlled.

### Prognosis

*Eyes.*—In the majority of cases affected by mustard gas the prognosis is good if the initial treatment has been prompt. The possibility of a functional photophobia must always be kept in mind. However, before this diagnosis is made observation by an ophthalmologist with a slit-lamp is necessary.

*Respiratory and Alimentary Tracts.*—In the milder cases recovery is usually complete, without residual damage, but it may take a considerable time. Lung complications are the most common cause of death. The possibility of residual fibrosis of lung and bronchiectasis must not be overlooked.

*Skin.*—As with thermal burns, in those cases in which the damage is either of the first or second degree—that is, erythema or erythema plus blistering—healing takes place in 14 to 21 days and complications are not common. However, in cases which progress to the third degree and in which loss of the whole true skin occurs, sepsis is a frequent complication and many weeks may elapse before healing takes place. Fortunately, most vapour burns do not go beyond the second degree, and so contractures and scarring are rare; however, the possibility of their development must be borne in mind in cases which become infected or are of the third degree. Pigmentation will almost invariably be present, but usually fades in a matter of months. Severe or repeated burns leave the skin very prone to staphylococcal infection. Prolonged exposure, either to small amounts of vapour or to repeated small burns, tends to produce a condition of hypersensitivity.

*Systemic Effects.*—In severe cases the systemic effects may produce fatal results as they are difficult to deal with. However, patients are more liable to die from lung complications than from agranulocytosis.

## LEWISITE

### Prophylaxis

Although many of the principles mentioned for prophylactic treatment are common to both mustard gas and lewisite, it is important to keep a few special points in mind with the latter.

*Eyes.*—Owing to intense pain and spasm of the eyelids after liquid lewisite has entered the eyes, removal by washing is extremely difficult and almost useless. Recently B.A.L. ointment, which is a specific for arsenical vesicants and of great value in the treatment of the eyes, has been developed. The instructions for applying B.A.L. ointment to affected eyes are as follows:

Place ointment upon the index finger and rub firmly between the eyelids. Pull down lower lid and insert more ointment. Close lids and rub firmly. An excess should be smeared over the lids, and the process repeated at the end of one hour.

The pain attending lewisite contamination of the eye is relieved by the application of the ointment. If B.A.L. ointment is applied within two minutes of the time of contamination complete cure may be expected; complete cure may still result if it is applied within five minutes. The amount of final damage increases with further delay, so that if it is used after 30 minutes most eyes will eventually become sightless; beneficial effects, however, may be observed in some cases if treatment is given as late as one hour. No beneficial effects on eyes contaminated with mustard gas can be expected from the use of B.A.L. B.A.L. ointment should not be used unless one is sure that lewisite or other liquid arsenical vesicant has entered the eyes, as it produces marked blepharospasm, which may last for an hour or more. When attempting to separate mustard gas and lewisite cases it is well to remember that lewisite produces immediate and severe eye effects, whereas with mustard gas there is a delay of several hours.

*Skin.*—Lewisite lesions of the skin, as will be shown later, become obvious in about half an hour after they are sustained. Bleach and anti-gas ointments are not quite so efficacious with lewisite as they are with mustard gas, the danger of rapid absorption and systemic effects being greater. These can be countered by bathing the affected part with 20 vols. hydrogen peroxide and afterwards leaving a compress of this liquid over the affected area. B.A.L. ointment will prevent vesication and systemic effects if applied within a few minutes and will mitigate the severity of the effects even if applied so late as one hour after contamination.

B.A.L. ointment will be held centrally under the E.M.S., and will not be issued at present.

### Diagnosis

*Eyes.*—If liquid lewisite enters the eye immediate and intense pain and severe blepharospasm will occur, a corneal haze developing at once. Lewisite vapour produces an immediate but less painful reaction.

*Alimentary Tract.*—Effects will be similar to those of mustard gas, but will occur earlier.

*Respiratory Tract.*—The irritant effect of the vapour is severe and comes on in a few minutes.

*Skin.*—Tingling usually occurs soon after liquid lewisite reaches the bare skin. Subsequently the blisters which develop will be localized and tense, without surrounding erythema.

*Systemic Effects.*—If a large dose of liquid lewisite is allowed to remain untreated on the bare skin death may occur from acute arsenical poisoning. Lewisite, in addition to the marked effect produced on the liver and other internal organs, appears to have a selective action on the common bile duct and gall-bladder, with resulting haemorrhagic ulceration. Unlike the effect of mustard gas, the bone marrow in fatal cases is not found to be pale and agranulocytosis has not been recorded.

### Treatment

The value of B.A.L. ointment has already been mentioned in prophylaxis. Subsequent treatment should be on the same lines as for mustard gas, particular attention being paid to the possible systemic effects. As with mustard gas, it has been definitely established that the exudate from lewisite blisters is innocuous.

### Prognosis

This is similar to that outlined under the heading of mustard gas, except that special mention should be made regarding injury to eyes. With lewisite injury to the eyes, unless B.A.L. ointment is rapidly available, the prognosis is bad.

## SUMMARY

*Protection.*—(1) Avoid splash by remaining under cover. (2) Protect face, eyes, and lungs by gas-mask whenever gas can be detected by smell. The sense of smell rapidly becomes fatigued. (3) If contaminated by liquid remove the outer clothing at once. If it has been worn in a gaseous atmosphere remove it at the earliest possible opportunity. (4) Treat liquid contamination of the skin by mechanical removal, anti-gas ointment, or bleach cream if available, followed by washing if possible. Washing with soap and water alone may spread contamination. (5) If liquid enters the eye and no immediate painful reaction occurs mustard gas may be assumed; it must be removed at once by profuse irrigation. If an immediate reaction and pain and blepharospasm occur, arsenicals should be assumed and B.A.L. ointment should be applied. (6) Anti-gas ointments Nos. 1 and 2 and bleach cream are all skin irritants, and must be washed off if they are used. (Note: Anti-gas ointment No. 1 is obsolete.) (7) If there is no visible liquid on the skin it can be assumed that the patient is safe to handle. (8) The antidote for lewisite on the skin is hydrogen peroxide 20 vols.

*Treatment of Eyes.*—(1) Constant irrigation is detrimental. (2) Bandaging must be avoided. (3) Protection from the light by cardboard eye-shades is permissible. (4) Do not use local analgesics or antiseptics. (5) In bad cases a mydriatic should be used until pupillary dilatation is achieved. (6) Sticking of the lids can be avoided by smearing them with paraffin. (7) Sulphacetamide (albucid) drops relieve discomfort and combat subsequent infection. (8) B.A.L. ointment, if applied early, is a specific for eye and skin damage due to arsenical vesicants.

*Treatment of Skin.*—(1) Do not use any prophylactic treatment when the skin is showing actual signs of damage, unless lewisite is suspected by early skin changes. The value of B.A.L. at this stage is considerable. (2) Remove hair from affected area with clippers. (3) Clean the part with bland antiseptic. (4) Leave blisters intact whenever possible. (5) Remove redundant skin only if it is unavoidable. (6) Apply a sterile oily dressing. (7) Sulphonamides can be used to counteract infection if no systemic effects are present. (8) Any form of coagulant treatment is contraindicated. (9) Never change a dressing unless it is absolutely necessary. (10) After the first few days each case must be treated on its merits, keeping in mind the actual clinical manifestations rather than their origin. (11) The exudate from mustard gas and lewisite lesions is innocuous. (12) In serious cases it is essential to watch the condition of the blood so that appropriate action can be taken to counteract any adverse effects.

A list of those appointed by the E.M.S. to assist in the treatment of gas casualties will be found in the E.M.S. Instruction No. 283 (revised June 1, 1943).

I should like to express my gratitude for the help received from Dr. Stopford Taylor on the treatment of skin, Mr. T. J. Phillips on the treatment of eyes, and Brig. Pollitt on the treatment of burns. The staffs of the Ministry of Home Security, the Emergency Medical Services, the Passive Air Defence, and the Ministry of Supply have also given me much valuable information.

## RUPTURE IN A SUPPOSED LOWER SEGMENT CAESAREAN SECTION SCAR

BY

D. W. JAMES, M.B., B.S.

Owing to the increasing popularity of the lower segment operation, rupture of a Caesarean scar during a subsequent natural labour is becoming a rare accident. The following case is reported in order to show that the possibility of rupture should always be considered, even when the scar is believed to be in the lower segment.

### Case History

*Previous Operation.*—The patient was a para-1 aged 35. No accurate notes of the former operation could be obtained. It was performed at an R.A.F. hospital, and personal contact with the medical officer who performed it was impossible, as he is now abroad. The abdominal scar extended from the umbilicus to the suprapubic region in the midline. So far as could be ascertained from the hospital, a "lower segment" Caesarean section had been performed on Feb. 18, 1939, for an extended breech presentation with a small pelvis. Version having failed, the patient was delivered before the onset of labour of a living child weighing 5 lb. 4 oz., and she made a good recovery.

*Second Pregnancy.*—This was uneventful throughout. She had been warned early in the pregnancy, in view of her previous operation, that it would be necessary for her to be delivered in hospital according to the usual custom. During the last few weeks of her pregnancy she was kept under close observation for signs of overstretching of the uterine scar, but nothing abnormal was apparent. At 38 weeks the vertex was presenting and the head was well engaged in the pelvis with the occiput anterior. Although the promontory could be felt at a little over 4 inches, disproportion appeared to be negligible. At her last attendance at the antenatal clinic the uterine scar again appeared to be perfectly satisfactory, and it was decided that a natural labour should take place under observation in hospital.

*Onset and Progress of Labour.*—Labour began naturally on the expected date, and the patient was admitted to the Maternity Unit of the North Herts and South Beds Hospital with vague labour pains at 7 a.m. on Feb. 11, 1943. The membranes were intact, the head was engaged in the L.O.A. position, and there was nothing to indicate that the course of labour would be abnormal. At 11.30 a.m. on the same day it was noticed that the lower part of the abdominal scar was a little prominent in the suprapubic region. The appearance suggested, in fact, that the bladder was not completely empty. A catheter was passed, and 2 oz. of urine withdrawn without alteration in the abdominal contour. The maternal pulse was 80 at this time. The limbs were easily felt under the scar, but there was no local pain or tenderness. The cervix admitted one finger and contractions were weak. She remained perfectly comfortable, with occasional weak contractions, until 4 p.m., when she suddenly vomited and complained of sharp pains in the lower abdomen. Her general condition was good, but her pulse rose to 100. The lower part of the abdominal scar was plainly larger than before, and on palpation gave the impression that the limbs were just under the skin. There was now some local pain and tenderness, and with each contraction the lower part of the scar bulged in the suprapubic region. Impending rupture of the uterine scar was diagnosed, and it was decided to perform an immediate laparotomy. Half an hour later she began to complain of continuous pain, and the bulge had extended along the entire length of the abdominal scar. By the time the patient was in the operating theatre, at 5 p.m., foetal parts were easily felt under the skin, and it was evident that rupture had occurred.

*Operation.*—Anaesthesia was induced with gas and oxygen and maintained with the addition of trilene. On opening the abdominal cavity through a midline incision free blood and liquor were encountered. The arm and shoulder of the foetus presented through an irregular laceration, which appeared to extend from below on the right side of the lower uterine segment to a point higher up on the left side of the body of the uterus. A leg was seized and the child delivered through the rupture by the breech. After a short period of asphyxia it recovered and cried almost at once. After separation and removal of the placenta and membranes it could be seen that the rupture extended well up into the body of the uterus close to the origin of the round ligament on the left side. The edges of the wound were badly lacerated, friable, and infiltrated with blood-clot. There was also considerable haemorrhage between the layers of the broad ligament on the left side. A subtotal hysterectomy, with conservation of the ovaries, was therefore performed, and the abdomen closed. Immediately after the operation the patient's condition was fairly good. Her pulse was 120. A blood transfusion had been started when it was decided to perform hysterectomy and 500 c.cm. was given rapidly, followed by a further 500 c.cm. by slow drip on her return to the ward. Three hours after the operation her pulse was 96 and her general condition much improved. The puerperium was apyrexial; she was allowed up on the 14th day, and she returned home after three weeks, breast-feeding the baby.

*Pathological Report upon the Uterus.*—I am indebted to Dr. W. W. Woods, of the Institute of Pathology, London Hospital, for a description of the specimen, as well as of microscopical sections through the old Caesarean section scar. "The specimen is the upper part of a parturient uterus. It measures 13 cm. long in the posterior wall and from 9 to 12 cm. long in the anterior wall, and 11 by 7 cm. across the fundus. The appendages are absent. The serosa is smooth. The lower edge of the posterior wall is the cut edge of hysterectomy. In the anterior wall the lower edge of the specimen is the rupture. Immediately above the rupture, and partly in it, the old Caesarean scar is faintly seen as a contracted area of myometrium with a few tags of omentum adherent to it. The rupture and scar pass obliquely across the anterior wall from the right side at a point 9 cm. below the uterine attachment of the right ovarian ligament to end in the left side at a point 1.5 cm. below the left ovarian ligament. The scar is therefore in the body of the uterus and not in the lower segment. In the microscopical sections made across the rupture evidence of the scar is seen as an area of fibrosis, with contraction, in the myometrium. There is continuity of muscle fibres through the scar."

### Discussion

Commenting upon the few cases of rupture of a lower segment scar that have been reported, Marshall states: "There is more than a suspicion that in several of these cases the incision was not wholly confined to the lower segment, and that it was the corporeal part which subsequently ruptured." Although he was referring chiefly to the vertical incision, this criticism might well be applied to the case reported above. In fact, it is clearly shown by the pathological report that the incision was placed entirely in the body of the uterus, although it was evidently intended to be in the lower segment.

The oblique direction is not easily explained. Whether the incision was intended to be vertical, or whether this was the result of an asymmetrical curve upwards in a transverse incision, it is impossible to say. The patient was not in labour at the first operation, and it is possible that the development of the lower segment was defective or that it was difficult to define. Nevertheless it emphasizes once more the importance of a really low transverse incision.

Certain conclusions may be drawn from this case with regard to previous Caesarean operations in general: (1) That full notes of a previous Caesarean operation should always be obtained if possible. (2) That the abdominal scar is not necessarily a true indication of the nature of the uterine scar. (3) That great vigilance is necessary in all cases previously delivered by Caesarean section and subsequently allowed a natural labour, which must take place in a hospital. (4) That definite signs of overstretching of the scar usually precede the

actual rupture, and that rupture may occur with only weak contractions. (5) That the prognosis depends upon the time elapsing between rupture and laparotomy.

Early diagnosis of impending rupture should reduce the mortality to a minimum. In the case reported only a few minutes elapsed between rupture and the delivery of the child. A little earlier and the uterus might have been saved; a little later and two lives might have been lost.

I wish to thank Mr. Eardley Holland for his valuable criticism and suggestions, and for his permission to publish this case.

# MEIGS'S SYNDROME

## HYDROTHORAX AND ASCITES IN ASSOCIATION WITH FIBROMA OF THE OVARY

BY

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Pleural effusion and ascites may be found in association with cardiac, renal, or hepatic disease, and in the absence of any such clearly defined clinical syndrome are commonly attributed to carcinomatosis or tuberculosis. The association of simple fibroma of the ovary with ascites is well known, free fluid sufficient to be recognizable clinically being found in 75% of cases. Pleural effusion in association with ascites and fibroma of the ovary is a rare condition. Only 28 cases have been reported in the literature, 27 of these being from America and one from Great Britain. It is our purpose to describe two such cases which have recently occurred in Aberdeen, as we believe that others may go unrecognized and, since ascites and hydrothorax immediately suggest an inoperable growth, some patients may have died unnecessarily. This is suggested by the fact that patients who were very seriously ill have made excellent recoveries after operation.

### Previous Cases

The first case was reported by Cullingworth in 1879, and the patient died without operation. The condition was first described in 1892 by Lawson Tait, who advocated exploring the abdomen in patients with abdominal and chest fluid, for he considered that this combination did not always mean cancer. There was no further reference until 1923, when Hoon of the Mayo Clinic reported two cases. Meigs (1934) referred to 3 cases, reported 4 in collaboration with Cass in 1937, and in 1939 summarized 15 more cases. Later, in 1940, this total was increased to 18, while in 1943 further cases were described by Meigs *et al.*, bringing the total of authentic cases described in America to 27. Rhoads and Terrell first used the term "Meigs' syndrome" when reporting a case in 1937. In Dec., 1943, Gild described one case in England.

### Recorded Signs and Symptoms

In the majority of cases the history was that of dyspnoea, loss in weight, fatigue, cough, and pain in the chest, while on physical examination a massive pleural effusion was found in association with a greater or less quantity of abdominal fluid together with a pelvic tumour. The tumour may be a large and easily palpable mass associated with a clinically undetectable quantity of abdominal fluid or, alternatively, may be no larger than a walnut, only discoverable, in the presence of considerable ascites, at operation. In all cases the pleural effusion has been of a massive nature causing collapse of the lung on the affected side and displacement of the mediastinum. The condition may occur at any age, the oldest patient being 73, and it has even been found complicating pregnancy. The right side of the chest is more often and usually more extensively affected than the left. There is no recurrence of the effusions after removal of the tumour, and indeed spontaneous resolution of the chest occurs within a few weeks. This is in marked contrast to what happens before operation, when, following the removal of large quantities of fluid, the chest fills up again in a matter of a few days, or in some cases within 24 hours. In some instances there is so little fluid in the abdominal cavity that paracentesis may fail to locate it, but some will always be found at operation.

### Case Histories

*Case 1.*—An unmarried woman aged 59 was admitted to the gynaecological ward of the Aberdeen Royal Infirmary with a complaint of breathlessness for the past year. She had noticed a lump in her abdomen for about the same period. The last menstrual period occurred ten years previously. The patient was emaciated and slightly orthopnoeic. There was a right pleural effusion, producing a mediastinal shift to the left. The abdomen was distended by a large irregular cystic swelling arising from the pelvis and reaching above the umbilicus. Vaginal examination revealed a small uterus distinct from the tumour. *X*-ray examination disclosed a large chronic effusion almost completely filling the right chest. The sputum showed no evidence of tubercle bacilli. The blood sedimentation rate was 15 mm. in the first hour. Almost five pints of straw-coloured fluid was removed from the right pleural cavity. Bacteriological and pathological examination of this fluid failed to show evidence either of tuberculosis or of malignant disease. Laparotomy by Prof. Baird two weeks after admission demonstrated a big unilocular cyst about 8 in. in diameter attached to the left broad ligament. There was a small quantity of fluid in the peritoneal cavity. The cyst was removed and the abdomen closed. Histologically the tumour was shown to be a cellular ovarian fibroma with marked cystic degeneration but no evidence of malignancy. Recovery was rapid and no further breathlessness has been noted. Her general condition improved steadily and the emaciation quickly disappeared. A radiograph of the chest three months after operation showed the lungs to be normal.

*Case 2.*—A married woman aged 47 who had one child, now aged 25, was admitted to Aberdeen City Hospital as a case of pulmonary tuberculosis. Her complaint was breathlessness for the past five months. The menstrual history was normal. She was a thin, rather wasted woman—breathless while lying in bed. There was a large pleural effusion on the right side with a slight mediastinal shift, and on abdominal palpation a large mass was felt rising out of the pelvis to the level of the umbilicus, but no free fluid could be detected. On vaginal examination a hard mass was very easily felt in the right fornix. *X*-ray examination of the chest showed a large pleural effusion on the right side. The left lung was normal. No tubercle bacilli were found in the sputum by direct film or on animal inoculation. The blood sedimentation rate was 10 mm. in the first hour. The right pleural cavity was aspirated and the fluid replaced by air. The fluid was clear, and histological examination of centrifuged deposit showed no evidence of malignant disease, while animal inoculation of two specimens failed to reveal the presence of tubercle bacilli. Subsequent *x*-ray examination disclosed a right hydropneumothorax with complete collapse of the right lung. In all, 35 pints of fluid were removed from the right pleural cavity. Paracentesis of the abdomen failed to elicit fluid. An exploratory laparotomy was performed by Prof. Baird two months after admission. There was less than a pint of fluid in the peritoneal cavity, and a large white lobulated tumour (7 by 6 in.) was found attached by a pedicle to the right broad ligament posteriorly. The left ovary was normal. The tumour was removed, and proved to be a typical ovarian fibroma with no evidence of malignancy. Post-operative convalescence was uneventful. Further radiographs of the chest showed rapid absorption of the right pleural effusion, and ten weeks after operation only a trace of fluid was detectable. The right lung had expanded, and the patient's general condition had greatly improved.

### Aetiology

No satisfactory explanation exists to account for the phenomenon. The suggestions which have been offered are: (1) lack of drainage of the right chest by the azygos vein; (2) repeated minor trauma to the peritoneum by the fibroma, causing a histamine toxicosis or anaphylactic shock plus accumulations of peritoneal and pleural transudate; (3) congenital communication between the abdomen and the chest—the so-called pleuro-peritoneal canal.

None of these explanations have been satisfactorily proved. Meigs *et al.* introduced a quantity of air into the pleural cavity, the patient then being tilted into the Trendelenburg position and *x*-rayed without any evidence of air being forced into the abdomen. The reverse procedure, whereby a considerable quantity of air was pumped into the abdomen to the point of discomfort and dyspnoea in an effort to demonstrate any passage-way for air from the abdomen to the thorax, has also

failed. In two patients 2 c.cm. of sterile Indian ink was injected into the abdomen, and chest taps were performed later. In each case the fluid in the chest showed the same concentration of Indian ink as that in the abdomen. That the Indian ink did not arrive in the pleural fluid by way of the blood stream was considered established by study of the blood, since no evidence of Indian ink could be found in the leucocytes on microscopical examination. This experiment suggested that the abdominal fluid may arrive in the chest by the same paths as the Indian ink, or vice versa. The probability is that the pathways are lymphatics which pass through the interstices of the serosal cells under the diaphragm, thence to the supra-diaphragmatic lymphatics and so into the chest.

**Summary**

Two cases of Meigs's syndrome (fibroma of the ovary with pleural effusion and ascites) are described.

This condition is probably rare, but without doubt some cases go unrecognized, since they are often ill and simulate advanced carcinoma of the ovary or severe cardiac, renal, pulmonary, or hepatic disease. This is most unfortunate, since such patients' would be denied an operation which gives excellent results.

The syndrome must always be considered in a differential diagnosis of abdominal and chest effusions, and as only one other case has been described in the British literature in the last 20 years we feel that the occurrence of two cases within a year among a relatively small population suggests that some cases are being overlooked.

We wish to thank Prof. Dugald Baird and Dr. John Smith for their interest and encouragement.

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# Medical Memoranda

## Fibrositis of the Rectus Abdominis Muscles causing Dyspepsia

Numerous cases of dyspepsia, or pain after food, fail to reveal any physical abnormality on ordinary routine examination. Even *x*-ray investigation of the stomach, duodenum, and gall-bladder is equally sterile of definite evidence of disease, and vague diagnoses of gastritis, duodenitis, or chronic cholecystitis are made. The patient continues to complain of indefinite pain —sometimes soon, sometimes late after food. He undergoes long courses of careful diet and takes much alkaline powder. Finally he or she drifts into a hypochondriac state, having given up all the joys of life which are associated with eating, drinking, and smoking.

In treating such cases one will be well repaid by making a careful examination for tender areas of fibrositis in the upper ends of the rectus abdominis muscles—particularly in their origins from the surfaces of the fifth to the seventh costal cartilages, the xiphoid cartilage, and the costo-xiphoid ligament. In a surprising number of cases tender nodules of fibrositis will be found, and after these have been "broken up" and treated by skilful massage the dyspeptic symptoms will disappear as if by magic and the patient will regain robust health.

I have had some difficulty in getting masseuses to carry out the treatment properly. The massage should be done with the tips of the fingers, working the skin in a circular movement and pressing upon the tender area as deeply and firmly as the patient will allow—short of bruising the tissues. Light stroking movements have as little curative effect as sticking on a ten-and-sixpenny stamp, the usual fee for the attendance. Masseurs should have three main qualifications—very sensitive fingers, very strong fingers, and complete ruthlessness! Massage should be given twice or, at the most, three times a week; there is always a certain amount of reaction and general tenderness after "breaking up" the fibrositic nodules, and this must be allowed to settle down before the next treatment is given. But, by starting with light pressure and gradually increasing it, a skilful masseur will soon take out the tenderness. An infra-red lamp will help considerably, but it should be left with the patient to use for hours at a time.

The rectus abdominis muscle is supplied by branches from the fifth to the twelfth thoracic segments. These same segments also send branches to the coeliac plexus. Fibrositis may cause a reflex action in the abdominal organs, giving rise to spasm or dysfunction.

ILLUSTRATIVE CASES

*Case 1.*—Mr. A., aged 52, was well till five years ago, then began to have indigestion. The pain had no time relation to food, but was sometimes relieved by it. *X*-ray examination showed an active and normal duodenum and gall-bladder. His sinuses were radiographed and found to be normal; likewise his spine. For a month he was "investigated" in the private ward of a large hospital, but no disease could be found, and he got only a little temporary relief from the rest. One physician told him he was suffering from aortitis, but a second negatived this by means of a cardiogram. When I first saw him he looked ill and debilitated. He felt sick and had pain after every meal, but seldom vomited. When he could vomit he felt relief. He was living on a special diet of milk, fish, and breast of chicken. I asked him to put his finger on the spot where he felt pain, and to my surprise he indicated the right costal margin, where I found a patch of acutely tender fibrositis, which he would hardly allow me to touch. I massaged this, and he felt better that same day. I got a good masseuse to treat him with massage and an infra-red lamp, and in three weeks he was a perfectly well man, taking full meals with beer, and sleeping well and putting on weight. He also smoked and took cocktails with no bad results. The only medicine I gave him was 15 minims of dilute hydrochloric acid with meals, and this he discarded after two weeks.

*Case 2.*—Mr. B., aged 44, told me he had had a duodenal ulcer for the past 17 years. His gall-bladder was removed nine years ago after *x* rays had shown the ulcer to be healed. But three years later he had severe haematemesis, and the ulcer became active again. Since then many radiographs had shown the ulcer to be healed, but he still complained of violent pains after food, particularly at night. He had much business worry. On examination I found marked tender fibrositis in the upper ends of both rectus abdominis muscles. No medicine was given, and a course of massage and infra-red treatment cured his "indigestion."

*Case 3.*—Mr. C., aged 68. His was an old duodenal case with a history of melaena on two occasions. Recent bismuth meal examinations revealed a healed posterior duodenal ulcer. Nine months ago he began to suffer acute pain in the upper abdomen, which had no relation to food, but which was always worse at night and even woke him up most nights. He had tender fibrositis in the origin of the right rectus muscle. I massaged this, and next day he telephoned from his home 50 miles away that he had slept all night without pain for the first time in nine months. He has had a course of massage, and has not had any trace of pain since.

London, S.W.7. R. SIMPSON HARVEY, M.B., B.S.Lond.

## Diaphragmatic Hernia with Torsion of the Stomach and Acute Obstruction

The case described below came under my care, and the operation revealed such unusual conditions that it seems worth recording.

CASE RECORD

Mrs. X., aged 57, was admitted on April 2, 1943, to an emergency hospital with symptoms of acute pain in the chest and distension of the upper part of the abdomen. There was a history of a diaphragmatic hernia, diagnosed and confirmed by *x*-ray examination at the King Edward VII Hospital, Windsor, in 1939. The symptoms at that time were of epigastric discomfort relieved by belching. This continued at varying intervals, and she was admitted to the same hospital in September, 1941, when she was also found to have a left inguinal hernia. A radical cure was performed on this, and the patient made an uneventful recovery, being discharged on Oct. 11. The attacks of discomfort in the upper abdomen continued at irregular intervals, and on April 2, 1943, she was seized with acute pain in the left side of the chest. This was accompanied by ineffectual attempts at vomiting. She was admitted the same evening to the emergency hospital, and on examination was found to be greatly distended in the epigastrium, the rest of the abdomen being flat. The appearance was very striking, and was clearly due to a greatly distended stomach. Her pulse was low (64), and temperature subnormal (96.6°). There were sounds of borborygmi to be heard in the left side of the chest.

An operation was performed without delay through a left paramedian incision. The stomach at once presented itself, very tense and like a distended rubber balloon. By passing the hand round the left-hand surface of the stomach it was possible to reach the edge of the diaphragmatic aperture, and by manipulation the intrathoracic portion of the stomach was successfully withdrawn. The moment this was done the whole stomach turned over from right to left. In its distended condition it was approximately 18 to 20 in. long and 8 or 9 in. in diameter. It was clear that there was then no obstruction at the pylorus. By turning the stomach over to the right it was possible to see the opening in the diaphragm, which was to the left of the oesophageal opening, and admitted two fingers easily. The opening was occluded by a stout double catgut suture and the abdomen was closed. On April 5 there were signs of left-sided basal pneumonia, which cleared up in a few days, and the patient was discharged on April 19 with no symptoms.

She was *x*-rayed again on June 9. This showed a rather large stomach, but no sign of any recurrence of the hernia. She has remained entirely free from gastric symptoms since her discharge from the hospital, and six months after the operation had had no further trouble.

COMMENT

The case is interesting on account of the condition found at operation, where the stomach was twisted and enormously distended, and by the rapid recovery of the gastric functions in spite of the excessive stretching of the muscular and mucous wall of the stomach. How the torsion had occurred must be a matter of pure conjecture, but the impression at the time of the operation was that the pyloric end of the stomach had been dragged or twisted to the left side into the hernial orifice. The original radiograph, taken in 1939, showed the ordinary condition of herniation of the fundus.

London, W.1. HAROLD GARDINER, M.S., F.R.C.S.

## Varicella and Herpes Zoster in the Same Patient

It is very unusual to encounter the characteristic eruptions of chickenpox and herpes in the same patient, and I am not aware of any record of a similar case in a child. The significant features appear to be the allergic history and the somewhat diffuse distribution of the herpetiform eruption apparently involving the anterior divisions of numerous nerve roots.

The patient, a boy aged 5½ years, is an only child, sensitive, highly strung, precocious, allergic to pollens and mixed inhalants group. The father has a history of allergy in his childhood. The boy developed typical chickenpox on Dec. 29, 1943. The attack was mild, being afebrile after two days. On Jan. 22, 1944, there was an eruption of herpetic vesicles on the right side extending from the clavicle and deltoid area over the chest and abdomen to the upper half of the right thigh. The eruption was limited by the midline in front and by the mid-axillary line. Apart from the discomfort of the eruption, there were no unusual symptoms until Jan. 27, when the temperature rose to 102° F. and the next day to 104°. It gradually subsided, and was normal by Feb. 3.

On Feb. 2 he had some malaise accompanied by loss of appetite, dirty tongue, enlarged and tender liver, and pale stools; there was no obvious jaundice to the naked eye, but bile was present in the urine. This lasted two days and rapidly cleared up. On Feb. 14 he had an attack of typical asthma.

I am indebted to Dr. S. R. Foster, the family physician, for his interest and co-operation, and for some of the additional clinical notes.

Belfast. F. M. B. ALLEN, M.D., F.R.C.P.

## Concurrent Herpes Zoster and Varicella

The following case seems worthy of record if only for its extreme rarity. The relation between herpes zoster and varicella was first noticed by J. Van Bokay in 1892. Since then the relationship has attracted much attention, and most practitioners are agreed as to the increased incidence of herpes zoster in epidemics of varicella. Up to 1930 Netter of Paris had been able to collect only 20 cases of concurrent herpes zoster and varicella, and some eminent authorities were inclined to attribute the concurrence to mere coincidence. Cranston Low has advanced the theory that both diseases are due to the same virus, in one case affecting the nervous system and in the other being blood-borne. The case described below seems to favour this theory.

A man aged 63 came to see me on March 9, 1944, complaining of pain in the left hypogastrium with a generalized rash. On examination I found typical symptoms of varicella as to both lesion and distribution. In addition the painful area showed typical herpes zoster. He stated that he had felt "off colour" on March 5. By evening he had pain in the left side and found some "blisters," and at the same time felt an irritation of the face and scalp. On the morning of the 6th he was covered with a well-developed rash. Both rashes have since run a normal course. The patient is a chronic bronchitic who has not worked for months, and he shares a house with another elderly man. There is an epidemic of varicella at the time of writing (March 29).

Additional points of interest are: (1) the coincident appearance of the rashes; (2) the age of the patient.

Warrington, Lancs. J. J. MANNING, M.B.

The Professional Advisory Committee of the U.S. Office of Vocational Rehabilitation held its first meeting in Washington on March 3. The committee, made up of 20 specialists in medical and allied fields, was appointed to provide professional guidance in mapping the new State-Federal programme for medical and surgical care under the Barden-LaFollette Act. In opening the meeting Mr. Paul V. McNutt stressed the Federal Security Agency's desire to aid the States in providing physical restoration services which will conform to the high professional standards recognized by the national and State medical associations and by the hospital associations.

# Reviews

## GENERAL AND SPECIAL BIOCHEMISTRY

*Annual Review of Biochemistry.* Edited by James Murray Luck. Associate Editor, James H. C. Smith. Volume XII. (Pp. 704. 31s. 6d.) California: Stanford University P.O., Annual Reviews, Inc.; London: H. K. Lewis and Co.

*Vitamins and Hormones.* Edited by Robert S. Harris and Kenneth V. Thimann. With a foreword by E. V. McCollum. Volume I. (Pp. 452. $6.50.) New York: Academic Press, Inc.

The twelfth volume of these annual reviews is, like earlier ones, a co-operative effort of American and British experts—three chapters having been contributed by writers in this country and the other twenty-one by United States scientists. The standard of previous volumes is admirably maintained. The individual articles are detailed, highly technical, authoritative surveys generally covering a period of four or five years, which is about the time allowed by the editors before a subject is picked up again. Readers of this *Journal* will find much here that bears indirectly but fundamentally on medical practice, if sometimes possibly only on future practice; but they will also be able to read with a more direct interest chapters on nutrition in 1941 and 1942 (C. S. Lanford and H. C. Shermann), on synthetic drugs (T. C. Daniels), on the metabolism of proteins and amino-acids (H. Borsook and J. W. Dubnoff), of fat (G. O. Burr and R. H. Barnes), and of carbohydrate (H. J. Deuel jun.), as well as accounts of the water-soluble and the fat-soluble vitamins (R. J. Williams and K. Hickman respectively). Of practical interest, in a rather different way, are chapters on the electron microscope in biology (L. Marton) and on microchemistry (A. A. Benedetti-Pichler), while for those with a taste for the more fundamental and theoretical sides of biochemistry H. A. Krebs has written on carbon dioxide assimilation in heterotrophic organisms, E. S. Johnston and J. E. Myers on photosynthesis, and F. Lipmann on biological oxidations and reductions. Other chapters are concerned with the primarily chemical aspects of steroids (H. Sobotka and E. Block), of proteins and amino-acids (L. F. Hewitt, R. A. Kekwick, and A. S. McFarlane), of sulphur compounds (J. C. Andrews), of carbohydrates (H. S. Isbell), of the lipins (S. J. Thannhauser and G. Schmidt), of hormones (H. Fraenkel-Conrat), of animal pigments (C. Rimington), and of viruses (C. L. Hoagland). Finally, to round off the picture, astonishingly complete for wartime, there are reviews of mineral nutrition (L. A. Maynard and J. K. Loosli) and of mineral nutrition of plants (D. I. Arnon). The book is as indispensable to research workers and teachers in or near the field of biochemistry as have been its predecessors in this excellent series.

Prof. McCollum in his foreword refers to *Vitamins and Hormones* as a new publication, as indeed he had to do when introducing a "Volume I." But those who know and possibly possess the two issues of *Ergebnisse der Vitamin- und Hormonforschung*, published by the Akademische Verlaggesellschaft of Leipzig in 1938 and 1939, may reasonably regard this survey as more of a phoenix than a new creation. However that may be, the United States compares in every way favourably with its Swiss-German predecessor. Nothing, for example, could be better done than Prof. C. H. Best and Dr. C. C. Lucas's review on "Choline: Chemistry and Significance as a Dietary Factor"; in 60 pages, closely packed with information and discussion, they open up the allied problems of fatty livers and transmethylations, nor do they neglect to indicate emphatically where judgment must be suspended and more experiments made. Of somewhat slighter calibre, though of no less authority, is H. H. Mitchell's review of the relationships between vitamins and amino-acids. Wald's discussion of the part that carotenoids (including vitamin A) play in the photoreceptor system is perhaps the most controversial in the book; it comes from an expert with whom other experts in the field are not in whole-hearted agreement. R. J. Williams speculates interestingly on the distribution of vitamins in various tissues and organs, while Richard P. Hall discusses the more circumscribed subject of growth factors for protozoa. Norman Jolliffe and Rita M. Most contribute a discussion on the appraisal of nutritional states, practical and topical. The review of the physiology of anti-pernicious-anaemic

material by George R. Minot and Maurice B. Strauss is clearly the last word on the subject at the time of its writing. The surveys of the intermediate metabolism of the sex hormones by Gregory Pincus and William H. Pearlman and on the adrenal cortical hormone by T. Reichstein and C. W. Shoppee are of the same calibre, the latter being, apparently, the only contribution to this volume by authors not resident in North America. There is reason to believe that the editors will have arranged in later volumes for the collaboration of authors in Great Britain, for whom this first volume has set an almost terrifyingly high standard.

## THE HOSPITAL ALMONER

*Social Service in a General Hospital.* By Dorothy Manchée. (Pp. 164. 6s.) London: Baillière, Tindall and Cox. 1944.

The more the science and art of medicine advances the more does it become apparent that it is closely linked with every other branch of knowledge. The patient is not an individual in a vacuum; he can only be fully understood in relationship with his environment, his friends and family, his economic status, and his housing facilities. In this little book Miss Manchée shows not only how important these factors are, in both diagnosis and treatment of almost every patient who comes to a doctor, but also how a well-organized almoner's department in a hospital can help the physicians and surgeons in their day-to-day work. After introductory chapters on the social services, the various departments and services of a large hospital are considered from the almoner's point of view. This is followed by a very brief discussion of the clinical characteristics of various types of patient, such as the cancer case, the diabetic, the orthopaedic patient, and so on. These notes are simple, and while it might be easy to criticize some of them they are sufficiently accurate and adequate for the aspiring almoner. Then the duties of the social worker in relation to these various types are discussed. Very properly the importance of such work in relation to the V.D. department is stressed, and it is to be hoped that all those concerned will take note of this. It is easy and pleasant to undertake social work on behalf of the cripple child, but not so easy and pleasant to do this for the young woman who has fallen by the way; yet the latter needs it quite as much as the former, if not more. One most important point is stressed—that the almoner is a social worker and not a fee-snatching agency; she should be free to do her proper work, which includes the collection of money to help her patient, and there is an excellent chapter on the sources to which she may look for this assistance. The last few chapters are devoted to the instruction of the student and a general discussion of the functions of the department. A useful bibliography is appended.

While some members of hospital staffs are keen on the almoner and make good use of her, it may be suspected that the majority do not use her half enough, and everyone would be well advised to read this interesting and well-written book.

## MERCER'S ORTHOPAEDIC SURGERY

*Orthopaedic Surgery.* By Walter Mercer, M.B., Ch.B., F.R.C.S.Ed. Third edition. With foreword by Sir John Fraser, Bt., K.C.V.O. (Pp. 947; illustrated. 45s.) London: Edward Arnold.

Mercer's *Orthopaedic Surgery* has made a place for itself, as the appearance of a third edition indicates. The new volume is a few pages longer than its predecessor, though the quality of the paper and to some extent the reproduction of illustrations and the reduction of the valuable bibliography reflect the stringency of wartime publication. On the whole the lay-out is clear and the description lucid, so that reading is not laborious and items of interest can be easily found.

Mr. Mercer still seems unable to decide whether the synchondroses between the vertebral bodies are joints or not, for, while stating that they are "not joints in the true sense of the word," he describes posterior spinal fusions as "extra-articular arthrodeses in the truest sense of the word." They are, in fact, joints, and perhaps a better concept of surgical tuberculosis would be gained by the student if tuberculosis of the spine were considered under tuberculosis of joints. Juxta-articular lesions are, indeed, the usual sites of onset, whether in hip or spine, but as a rule joint involvement soon follows in both.

A few minor points surprise us, such as that rupture of the long head of the biceps brachii is so rare that it is associated with old fractures of the humeral neck rather than with arthritis, and that the treatment is operative repair. Again, the use of a knee cage in the treatment of torn cartilage and its ability to control rotatory movement at the knee seem open to question. Rather too much emphasis and room are accorded to operative details, and too little to the important features of treatment which precede and follow operations and which occupy most of the orthopaedic surgeon's time and interest.

The book has been brought up to date and will prove of particular value to those working for higher surgical qualifications or embarking on a surgical career. In spite of the points which invite criticism here or there, it will continue to hold an important place in the literature of orthopaedic surgery.

## Notes on Books

The *Textbook of Surgical Treatment*, edited by Prof. C. F. W. ILLINGWORTH of Glasgow and written by himself and eighteen other Scottish surgeons, appeared first at the beginning of 1943. We welcomed it as a sound and modern work likely to run into future editions. That opinion is supported by the publication within 18 months of a second edition (Edinburgh: E. and S. Livingstone; 30s.). The most notable change is in the chapter on treatment of burns, which has been rewritten by Mr. Thomas Gibson from his experience in the Burns Unit of the Glasgow Royal Infirmary.

The fourth edition of *Medical Bacteriology*, by L. E. H. WHITBY (J. and A. Churchill; 14s.), contains a new chapter on chemotherapy in the extensive section on applied bacteriology, which includes as before instructions for the laboratory diagnosis of infections listed alphabetically. Since in a total of 328 pages the book deals also with protozoology, helminthology, and mycoses, the systematic description of pathogenic bacteria has to be compressed into a perhaps unduly small space, and the intelligent reader will do well to heed the advice in the preface to consult larger textbooks for further enlightenment on some aspects of the subject.

The third edition of the valuable little textbook *Midwifery for Nurses*, by ALECK W. BOURNE, has now appeared (J. and A. Churchill; 7s. 6d.). It is full of sound common-sense teaching presented in a very readable form. Stress is given to such essentials as health of body and mind in pregnancy, delayed labour, ante-partum and post-partum haemorrhage, and sepsis. It can be warmly commended to midwives.

*Aids to Tropical Nursing*, by DOROTHY E. COCKER, sister tutor, Presidency General Hospital, Calcutta, is published at 4s. by Baillière, Tindall and Cox. This small book is one of the Nurses' Aids Series designed to provide in condensed and easily absorbable form information on tropical diseases from the nursing aspect, and this object has been admirably fulfilled. Beginning with chapters on fitness in the Tropics and the essentials of deficiency diseases, it proceeds to consider each main infection in turn. The information is accurate and singularly free from technical errors. It concludes with a summary of communicable tropical diseases, an adequate glossary, and an index. The figures are mostly temperature charts, but include simple illustrations of malaria parasites and methods of preparing blood films. There is one obvious misprint: the initials of Dr. Napier, who contributes a foreword, are L. E., not L. N. as stated.

*Doctor of Tanganyika*, by Dr. PAUL WHITE, is published by George M. Dash of Sydney, N.S.W., price 6s. This small book tells of the life and work in British Central Africa of an Australian medical missionary. Dr. Paul White is obviously self-reliant, capable and energetic, and the possession of these qualities helped him through a vast amount of work. He built a hospital and trained native male and female assistants. The book has found great favour in Australia, where it has gone through seven editions. It depicts the life led by the primitive African tribes in Central Tanganyika Territory and the hardships these people have to undergo at the hands of witch doctors. Dr. White's story will impress on intending medical missionaries the need to become as well grounded as possible in every branch of medicine and surgery.

The greater part of *The Dental Surgeon's Handbook*, by MARZEL and MAX BRONNER (John Wright and Sons; 21s.), is devoted to extensive but somewhat disjointed notes on dental surgery arranged in alphabetical order. A second section is on materia medica, with a description of most of the drugs and proprietary substances used by the dental surgeon. The volume can only be regarded as a book of reference, and in this respect should be useful to some practitioners.

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## REFORM OF MEDICAL EDUCATION

Few bodies in the history of British medicine can have had a greater opportunity or more responsibility than the Interdepartmental Committee appointed in March, 1942, under the chairmanship of Sir William Goodenough "to inquire into the organization of medical schools, particularly in regard to facilities for teaching and research, and to make recommendations." Progress in the science and art of medicine is inseparably connected with the facilities which our medical schools provide to attract the right men and to enable them to do their best work. The doctor's service to the community depends not only on his innate gifts but on the way in which he has been trained to think and do. And so the nature of medical education and the organization and facilities of our medical schools are some of the most potent factors in shaping the standard of medicine. At no previous time has there been an opportunity to survey the whole of medical education, in order to remedy its defects, with more certainty that something must be done. Change is inevitable; the destruction wrought by war and the people's desire for an improved health service make it so.

This eagerly awaited and now published report is a long one—312 pages, including 28 pages of summary—and it is impossible here to note more than a few of its chief points. The way is to be made easier for the student. All medical schools are to become co-educational. To increase the field from which students are selected, increased financial grants and a simplified machinery for distributing them are recommended. Students should not be selected on examination results alone. Accommodation should be provided in halls of residence for part of the undergraduate period, and for specific purposes in hospital during part of clinical training. The instrument of medical education should be a medical teaching centre catering for a student entry of 80 to 100 for the clinical years; and it should comprise a medical school which should be a faculty, college, or school of the university, a parent teaching hospital of 950 to 1,000 beds, and a group of neighbouring hospitals and clinics to provide supplementary facilities for clinical teaching. The governing bodies of medical school, parent teaching hospital, and associated teaching hospitals are to remain separate, but their work is to be co-ordinated by interchange of personnel and through common advisory machinery for selection of staff. In the main the details as to how these objects should be attained are left to the schools themselves. Important suggestions relating to certain schools are, however, made. In Scotland the three extramural schools in Glasgow and Edinburgh, which, receiving no Government grants, compare unfavourably with the university schools, are to disappear. In London the facilities provided by the West London Hospital should lapse after some years; to harmonize with the redistribution of population, Charing Cross is advised to move to a site in Middlesex, St. George's to South London, and the London School of Medicine for Women to North London. All are to be complete schools in that preclinical as well as clinical facilities are to be provided, and all are advised to conform to the ideal size and pattern already mentioned. The proposal to provide in Oxford complete clinical facilities for a small number of undergraduates is approved, and the very important recommendation is added that this school should experiment in teaching. Cambridge is unsuitable at present for undergraduate clinical teaching; it should first develop postgraduate departments. No new medical schools are to be created. In view of the importance of the universities and medical schools to any national health service, they should be represented on such central and local councils as may be set up for administration.

The report points out that the accommodation and equipment of most medical schools and teaching hospitals fall far short of what is necessary for teaching and research, and recommends that grants be made to remedy these deficiencies. Teachers in both preclinical and clinical departments should be more numerous and better paid. A national range of salaries with upper and lower limits is suggested: for example, at pre-war values professors would receive between £1,500 and £2,500, demonstrators between £350 and £500, and whole-time physicians or surgeons between £1,000 and £2,000 a year, part-time teachers being remunerated proportionally to the time they give. The teaching staff in all preclinical departments and in pathology should be whole-time. As suitable men become available, every school should aim at securing whole-time professors of general medicine, surgery, and obstetrics and gynaecology; in the special departments it may sometimes be desirable for men to work whole-time in the teaching centre. Most senior clinical posts would remain part-time, but the junior posts would be full-time. All appointments should be made from the widest possible field of applicants, and above that of registrar by a small advisory council including outside experts and representing the hospitals concerned, the university, or school.

Recommendations concerning the curriculum resemble in broad outline, though differing in certain important details from, those made by the College of Physicians. Elementary physics, chemistry, and biology should be taught at school as part of general education, and continued at the medical school as part of the course in anatomy and physiology. The standard required for entry to a medical school should be midway between that of the principal and subsidiary subjects of the Higher Certificate. Preclinical subjects should be pruned of some detail and more closely co-ordinated with each other and with clinical studies. In the clinical period the main emphasis should be on basic principles and methods, and on the future requirements of the general practitioners. The important recommendations are made that much of the teaching of

operative surgery and gynaecology should be reserved for the postgraduate training of specialists. In the undergraduate period the chief emphasis in surgery should be on principles, and on the recognition, early treatment, and ultimate effects of conditions commonly met in general practice. The committee recognizes the difficulties raised by the growth of specialism in the teaching of general medicine and surgery, and recommends that to facilitate co-ordination the teaching centre should be organized into divisions of (1) preclinical studies, (2) pathology, (3) medicine, (4) surgery, and (5) obstetrics and gynaecology, each with academic heads. Senior teachers, whether whole-time or part-time, would have as now the unfettered control of the management of their patients. The importance of social medicine, psychiatry, and child health is stressed, and the desirability of students' residence during part of their training pointed out. The undergraduate course should last four and a half years, of which the first two should be preclinical. It should terminate in a final examination conducted by the university and be succeeded by a compulsory year of house appointments, on satisfactory completion of which the student would be admitted to the *Medical Register*. The qualifying examinations conducted by licensing bodies other than the universities should cease. It is pointed out that these cater chiefly for the extramural students in Scotland and for the students of the London medical schools. It is considered that if the Universities of Oxford, Cambridge, and London make their examinations conform more to the type of internal examination held elsewhere, then there should be no need for these extra examinations, which may interfere with the teaching programme of the school and which cost the student money. The committee feels that the overhaul of the whole undergraduate curriculum and a reduction in its content are so important that their accomplishment might be made a condition of any increase in the Exchequer grant for undergraduate medical education. The initiative in this matter is referred to the General Medical Council.

No reform in undergraduate medical education can be effected without the provision of proper machinery and facilities for postgraduate study. Recommendations in this respect may be considered under two heads: those for the training of teachers and specialists and those for general practitioners. For specialists and consultants the committee accepts the recommendations of the Royal Colleges that five years' training after registration is necessary. These five years are to be spent in paid appointments in general hospitals, scientific laboratories, special hospitals, and abroad. Diplomas in public health, clinical pathology, bacteriology, and tropical medicine should be awarded by the universities, the remainder by the Royal Colleges. It is considered that the only ultimately satisfactory postgraduate training for the general practitioner is his continuous contact with the work of hospitals and specialists through holding suitable clinical assistantships. But for many years refresher courses will be necessary, and these should be organized by the universities having medical faculties, and held if possible at institutions not undertaking undergraduate education. These recommendations imply the development of special hospitals as centres of postgraduate education and research, and far-reaching proposals are made for the development of the British Postgraduate Medical School in London as a federation of general and special postgraduate institutes. The implementation of these proposals will naturally cost money. The committee estimates that to meet recurrent expenditure on undergraduate and postgraduate medical education the university schools will need additional resources which within 10 years will amount to between £1,750,000 and £2,500,000 a year, depending on expansion to meet a need for more doctors. Capital expenditure on the university medical schools is estimated at pre-war costs to be not less than £5,000,000. Finally, an Exchequer grant of £500,000 to the teaching hospitals is recommended provisionally as payment for the extra costs incidental to the provision of facilities for teaching and research. All these grants should be made through the Universities Grants Committee.

The present arrangements for medical education may be likened to a neglected garden, and these proposals to the plans of the gardener to remove weeds and dead wood and encourage growth where it promises to be productive. If the plans are carried out we may anticipate that the garden will be tidy, decorative, and above all productive. Two chief obstacles lie in the way. The first is the expense, in view of the uncertain economic condition of the country in the post-war period. But considering the relatively small sums involved, and the advantages that would be reaped by its children and its children's children, it would be short-sighted of the nation to allow difficulties of this kind to stand in the way. The second obstacle is the men. Teachers of medical students are to be given the tools so that they can finish the job. But unfortunately the post-war years will see a greater dearth of trained teachers than there has been since the end of the last war. Since 1939, staffs, particularly in the clinical departments, have been cut to the bone, and the best young men have been absorbed in the Services. If, then, the opportunity is to be taken, it is essential that our medical schools should begin as soon as possible to make more junior teaching and research appointments. The men must be trained now so that they can use the tools.

## THE WIDER DISTRIBUTION OF PENICILLIN

It has been made known in Parliament and otherwise through the lay press that penicillin is being freely used for the treatment of casualties from Normandy and is available also for the treatment of civilians injured in air raids. We are now permitted to give some account of the arrangements which have been made for this treatment, as they are contained in instructions for it issued by the War Office and the Ministry of Health. The available supplies have been enormously augmented by the generosity of the United States, and the policy adopted has been to give full doses of penicillin intramuscularly forward of the C.C.S. level and during transit to all wounded who are considered liable to develop gas gangrene or severe sepsis. Four types of wound are defined which are to be regarded as subject to this risk: those involving

extensive laceration, or destruction of muscle; those heavily contaminated or containing foreign bodies; those involving interference with the blood supply of a limb; and any wounds in cases which have "lain out" for a long period. A yellow label with the letters "PEN" is attached to such cases in Normandy, and, following an initial dose of 90,000 to 100,000 units, the administration of a maintenance dose of 45,000 to 50,000 units is continued at intervals of 4 to 5 hours during transit. When the man is disembarked in England the continuation of this treatment becomes the responsibility of the E.M.S., and the instructions issued provide for its administration in hospital trains and transit hospitals. On arrival at a base hospital, where definitive surgery can be undertaken, the continuation of penicillin treatment may or may not be necessary. It will be extremely interesting to hear what are the results of this boldly conceived experiment in chemoprophylaxis. We may assume that penicillin will also be used for the treatment of wound infections on the lines, based on experience in Italy, which was described by Lieut.-Col. J. S. Jeffrey and Major Scott Thomson in our issue of July 1.

Penicillin is also being supplied to E.M.S. hospitals for the treatment of air-raid casualties. Although every effort has been made to train the persons who will now be concerned in the use of penicillin by means of short courses of instruction at the research centre established last year by the Penicillin Clinical Trials Committee of the M.R.C., there must now be many hospitals where penicillin is available whose staffs have only a very limited experience of its use. This is therefore an appropriate time to repeat the warning often given by those most intimate with this remarkable substance—that it requires intelligent and most careful handling if it is to achieve its purpose. In the first place, unlike most ordinary antiseptics, it is not self-sterilizing. There are many bacteria, including non-pathogenic species commonly found in air and dust, which not only are unaffected by it but will actually cause its decomposition. If accidentally contaminated with such an organism as *Ps. pyocyanea*—an occurrence by no means unknown—a solution of penicillin may become a vehicle of infection and thus perhaps do far more harm than good. It is therefore a first essential that solutions and other preparations of penicillin shall be made up for clinical use by someone fully experienced in the precautions necessary for preventing accidental contamination. A full knowledge of the factors governing its stability and of substances with which it is incompatible is also necessary. From the purely surgical standpoint the main pitfall is overestimating the powers of penicillin and expecting it to do what can be done only by surgery. Penicillin is only an adjunct, however valuable, to good surgical treatment, and does not replace it in any way. Apart from this, success depends mainly on the choice of suitable cases for treatment. Although these can be defined in clinical terms, particularly when the aim is prophylaxis, it should never be forgotten, at least in the treatment of established infection, that what matters is not so much the nature of the lesion as the identity of the micro-organism causing it. Penicillin acts to a useful degree only on certain bacterial species, and among some of them even to a varying extent on different strains. A bacteriological diagnosis is therefore highly desirable, accompanied if possible by a determination of the degree of sensitivity of the patient's own organism to penicillin. It is for this reason that the bacteriologist has played a leading part in the conduct of penicillin treatment, and has usually had a considerable say in its control. His services are indispensable in deciding whether a case is suitable for treatment—unless this is given at an early stage and purely as a measure of prophylaxis—and for reasons already stated he may actually have charge of the material and be responsible for its preparation for clinical use. It is highly desirable that one thoroughly responsible person of high professional standing shall take charge of stocks, and if at the same time he is in a position to make a special study of the treatment and its effects his advice can be of value to a number of clinical colleagues whose individual experience may for the time being be less. There is perhaps no form of treatment in which close collaboration between laboratory and wards is more necessary.

A word should be added in defence of the general policy of restriction which has so far governed the use of penicillin—a policy which in some quarters has been criticized. Again for the reasons already given, it was possible to ensure that the limited supplies should be used to the best advantage only by confining their release to hospitals where a special study of the treatment could be made. These were at first few in number, but as experience was gained and knowledge diffused, both by the publication of methods and results and by instruction given to the staffs of other hospitals, their numbers have increased lately with such rapidity that they include a majority of those dealing with casualties. If penicillin had been more freely available at an early stage, and used by those unfamiliar with its limitations as well as its powers, there is no doubt that a great deal would have been wasted in treating unsuitable cases, thus depriving other patients of it who in fact have benefited. Some such restriction must clearly continue until penicillin becomes available through ordinary commercial sources of supply. We are informed that a limited allocation of British-made penicillin will shortly be available for civilian use. This will be provided for the time being at Government expense, and there should therefore be no complaint if the control of its distribution is such as to ensure so far as possible that it be used to the best advantage.

## PREGNANCY AND RHEUMATIC HEART DISEASE

There is general agreement that pregnancy may seriously aggravate the condition of a heart already diseased, especially by rheumatic carditis. The subject has been admirably surveyed by Hamilton and Thomson.[1] The ultimate effect of pregnancy and motherhood on women with heart disease has hitherto not been so widely studied, but Boyer and Nadas[2] have now filled this gap in our knowledge with a careful clinical and post-mortem study of 152 women who died from congestive heart failure.

[1] Hamilton, B. E., and Thomson, K. J., *The Heart in Pregnancy and the Childbearing Age*, Little, Brown and Co., Boston, 1941.
[2] *Ann. intern. Med.*, 1944, 1, 99.

The authors considered that if pregnancy had any delayed effect on the course of rheumatic heart disease it would be reflected in the age at death from congestive failure alone. They therefore excluded cases with complications lethal in themselves, patients dying of congestive failure precipitated by or during the course of pregnancy, and those dying before the age of 18. They found the average age of death from congestive heart failure to be significantly greater in women who had borne children (103 cases) than in nulliparae (49 cases). But this seems to be due to the inclusion in the latter group of those quickly fatal cases of heart disease in which the opportunity for conception was consequently absent. When those patients living to the end of reproductive life—40 years of age—are alone considered, the average age of death in the parous and nulliparous groups is "practically and statistically identical." Objection may be raised to using nulliparous patients as controls because of the possibility that only women in good health marry and have children. Without admitting the validity of such criticism the authors made the further comparison using only male patients. It then became apparent that there was no sex difference in the average age of death from congestive heart failure. In patients who survived to the age of 40 the average age of death was practically identical in parous females (49.8 years), nulliparous females (49.7 years), and males (50.1 years).

Boyer and Nadas found no post-mortem evidence to suggest that the increased "load" of pregnancies and motherhood caused any appreciable increase in cardiac hypertrophy. So they conclude that pregnancy has no delayed deleterious effect on the course of rheumatic heart disease.

Attention must therefore be focused on the assessment of the immediate risk of pregnancy, labour, and the immediate post-partum period. The following points may be taken as indicating an unfavourable prognosis: (1) a history of previous congestive heart failure; (2) Class 2 B or 3 (New York Heart Association Classification) cases, and in particular patients with auricular fibrillation; (3) age over 35 (Gorenberg and McGleary[3] say age over 30); (4) heart disease complicated by some other pathological condition. During the first nine lunar months of pregnancy the steadily increasing blood volume is a growing burden on the damaged heart[4]; in the last month this burden is lessened. Most cases of congestive heart failure are seen during the antenatal period, and it is during this time and in the immediate post-partum period that the greatest care and attention should be directed towards the prevention of those factors which might lead to cardiac decompensation. Rest at the onset of any untoward symptoms should be the invariable rule. No women need be debarred from pregnancy because of supposed delayed ill effects: it is the immediate risk that is important.

## PROTECTION OF RADIUM DIAL PAINTERS

The gross hazards which led to the tragic results of the industrial use of radium in New Jersey during the last war no longer exist. With proper precautions, enforceable in this country under the Factories (Luminizing) (Health and Safety Provisions) Order of 1942, and minutely carried out, no such serious injury could or should occur. But the human factor is sometimes potent in defeating the most stringent regulations, and for this reason emphasis on further preventive measures of highly technical procedure[5] and on "good housekeeping,"[6] as distinct from provision of preventive equipment, is both timely and necessary. Radium paint used for self-luminous dials and other instruments consists of a mixture of zinc sulphide crystals with a small amount of a radium salt. Radium, in however small amount, is constantly disintegrating, and during the process emits alpha radiation and the gas radon, while its decay products in their turn emit alpha, beta, and gamma radiation. The danger to radium dial painters from gamma radiation is not great, since the tolerance dose for whole-body exposure (0.1 roentgen per day) delivered by 1.45 mg. of radium at a distance of 1 foot would be exceeded only by much larger quantities of radium paint than are at present permitted to be handled at one time. The risk of accumulation of radium in the body from ingestion of small amounts of paint from contaminated hands, and even more from inhalation of radio-active dust, cannot, however, be regarded as negligible. In America it has already been found that in spite of adequate precautions 15% of all personnel do accumulate more than the tolerance dose, which is tentatively regarded as 0.1 microgramme of radium fixed in the body.[1] It follows that one of the most potent measures for preventing such accumulation is a routine test which will detect very minute quantities, so that any worker showing an amount exceeding the tolerance dose can be removed from exposure and given a chance to eliminate enough to bring the radium content to a safe level. One such test—the radon content of exhaled air—has been widely instituted in America and begun in this country. Breath samples are taken by causing the luminizer to exhale through a litre flask, care being taken that this is done in a place distant from the radium department and after the worker has been out of contact with radio-active material for at least several hours. Calculating from the tidal respiratory volume, the known rate of production of radon by radium, and the fraction of radon exhaled in average cases of chronic radium poisoning, it can be shown that about 1.1 micro-micro-curies of radon per litre of exhaled air represents 0.1 microgramme of radium in the body. Such an amount is said to represent 100% of the tolerance value of radium. Samples of room air can be analysed in the same way and thus a check kept on the effectiveness of the mechanical exhaust ventilation in keeping the radon content below the tolerance level. Another very sensitive technique for measuring the radium in the body by detecting gamma-radiation outside it is also now possible, the sum of this and of the amount estimated from the exhaled air representing the total amount fixed. Thus, workers who through individual carelessness or faulty technique do show the early danger sign of radium accumulation can be prevented from acquiring an amount likely to give rise to trouble in later years.

Carelessness and faulty technique are almost invariably a matter of "bad housekeeping," and can be avoided only by strict supervision, instruction, and constant attention to detail. Contamination of the hands from unsuitable paint containers or from insufficient cleansing of the hands and nails after work is a fruitful source of unsuspected ingestion. Inhalation of dust, even when no actual powder is brought into the room, is specially apt to occur when small splashes of paint on floor and benches are allowed to dry and be rubbed into powder. A striking demonstration of this possibility can be given by examining the workroom under an ultra-violet lamp. Once seen, the need for strict cleansing by a wet method usually requires no further emphasis. These and other details of working habit and equipment are the essence of protection of dial painters against injury, and if satisfactorily attended to should in time eliminate even the 15% of cases showing accumulation of radium as revealed by the exhaled air test.

[3] *Amer. J. Obstet. Gynec.*, 1941, **41**, 44.
[4] *J. Amer. med. Ass.*, 1939, **112**, 1556.
[5] Evans, R. D., *J. indust. Hyg.*, 1943, **25**, 253.
[6] Morris, G. E., *et al.*, ibid., p. 270.

# THE TRAINING OF DOCTORS

## REPORT BY THE GOODENOUGH COMMITTEE

The report of the Interdepartmental Committee on Medical Schools, under the chairmanship of Sir William Goodenough, has been published this week by the Ministry of Health and the Department of Health for Scotland.[1] The report is unanimous. It is signed by the chairman, by Sir John Stopford (vice-chairman), Prof. T. R. Elliott, Dr. A. M. H. Gray, Prof. James Hendry, Prof. A. V. Hill, Sir Wilson Jameson, Prof. J. R. Learmonth, Sir Ernest Pooley, and Dr. Janet Vaughan. Fundamental changes in the training of doctors to meet the requirements of a comprehensive National Health Service underlie the committee's recommendations, which are the outcome of a review, occupying two years, of the organization of medical education. The main proposals are briefly summarized below.

### Radical Changes Proposed

The committee recommends: (1) Drastic overhaul of undergraduate training; more attention to be paid to social medicine, the promotion of health, and the prevention, as well as cure, of disease, to children's health, and to mental health. (2) Co-education in all medical schools, and sex equality in hospital appointments. (3) Greatly increased Exchequer grants for medical education and research, and more financial help for students. (4) Reform of the examination system. (5) Compulsory hospital appointments after qualification and before entry into independent practice. (6) Changes in the policies and organization of medical schools and teaching hospitals; more whole-time teachers, and salaries for part-time teachers. (7) A comprehensive system for the training of specialists. (8) Development in London of a world centre for postgraduate medical education and research. (9) Linking of all major hospitals with the teaching centres.

The committee says:

"Properly planned and carefully conducted medical education is the essential foundation of a comprehensive health service. . . . The spirit of education must permeate the whole of the health service. One of the principal aims of national policy should be to secure for everyone the highest possible standard of physical and mental health. The achievement of this aim would establish a nation whose citizens were of good heart to enjoy the present and to confront their problems and difficulties with determined zest. By becoming advisers on health both to individuals and to the community, medical practitioners will have to bear much of the responsibility for ensuring this result and, by means of undergraduate and postgraduate training, must be provided with the knowledge and guidance necessary to enable them to carry out this important work. The present system of medical education is seriously deficient in this respect. To the neglect of the promotion of health, medical practice—and consequently medical education—has been concerned primarily with disease, chiefly as it affects individuals. A radical reorientation of medical education and practice is essential, and we believe that both medical practitioners and medical students are ready for it."

The changes in medical education necessary to meet the requirements of a comprehensive National Health Service must take some time to become fully effective. Many of the reforms proposed depend upon the building up of an adequate supply of teachers, a change of outlook on the part of teachers and examiners, and the remedying of serious deficiencies in accommodation and equipment.

Increased expenditure is necessary to remedy the defects in the present arrangements, to secure provision for more medical students, and to develop postgraduate education and research. The committee estimates that, including the outlay of teaching hospitals on facilities for teaching and research, the capital expenditure that should be incurred may within ten years amount to £10,000,000 at pre-war costs. In addition, the amount of recurrent grants will have to be increased yearly from £700,000 a year, the approximate amount before the war, until within ten years it reaches between £3,000,000 and £4,000,000 a year at pre-war values. At this level recurrent grants would represent about 2% of the estimated cost in the first year of the National Health Service. The committee is confident that these sums will be regarded as a reasonable price for the community to pay for a service vital to the promotion of national health.

[1] H.M. Stationery Office, York House, Kingsway, London, W.C.; price 4s. 6d., post free 4s. 10d.

### Needs of the Future General Practitioner

The committee considers that the training of medical students on modern lines can be conducted only under the aegis of a university and in institutions that conform to university standards. It should provide the student with a university education on broad and liberal lines. The type of instruction should have a definite bias towards the needs of the future general practitioner. Improvements in the organization of medical schools and teaching hospitals must be accompanied by a ruthless pruning of the medical curriculum and an overhaul of the system of examinations. Examinations must be the servant and not the master of the course of training, and reforms in medical education will be largely sterile unless the system of examinations conforms with them. In order that the burden of final examinations may be relieved and students encouraged to pay proper attention to all parts of the training, it is suggested that a system of "internal" departmental examinations in suitable subjects should be instituted as a complement to the final examination. One of the most important recommendations is that each student, after passing his qualifying examination and before being admitted to the *Medical Register* and allowed to enter independent practice, should complete a 12-months period of appointments in hospital.

"A fundamental and urgent reform is to secure that the main emphasis during the training is on basic principles and methods, and that due regard is given to the scientific foundation and framework of medicine. If students are to be trained effectively and are to be properly equipped for practice as family doctors, general medicine must form the most important part of their clinical training. More attention must be given to minor ailments, the more common diseases and the early stages of disease, to chronic diseases, to infectious diseases, to rehabilitation."

### Social Medicine, Child Health, Mental Health

In regard to the three interrelated subjects of social medicine, child health, and mental hygiene the committee says:

"In most schools the attention paid to social medicine, the promotion of health, and the prevention of disease is often perfunctory and largely divorced from the rest of the student's training. If medical students are to be fitted to become health advisers and members of a National Health Service, the ideas of social medicine must permeate the whole of medical education. A new orientation of medical education, a big expansion of the social work of teaching hospitals, and radical changes in the outlook and methods of most of the teachers are involved."

"To safeguard its own future, the nation will have to improve its provision for the welfare of children. These improvements will extend beyond the immediate sphere of medicine, but medical practitioners will have to play a leading part in raising the health of the children to the highest possible level. Generally in the medical schools the teaching about children has been inadequate and only faint interest has been taken in the subject. The deficiencies have been most serious in respect of child health and normal development. In many schools the experience which students gain of maternity work falls far short of what is necessary."

"Whether he is dealing with problems of health or sickness, the medical practitioner cannot fully understand his patients or advise and treat them adequately unless he pays due attention to their psychological background. The training in psychiatry has failed to keep pace with the growing realization of the important place which the subject should occupy in medical thought and practice. In future every medical teaching centre must have an adequate department of psychiatry, the work and teaching of which are related to the work and teaching of the other departments. These departments cannot be established until there is an adequate supply of competent teachers of psychiatry. The training of such teachers is a major and urgent need."

### Women Medical Students

The committee holds that unsuitability for a medical career should be the sole barrier to admission to a medical school. In the interests of the public and of the medical profession, co-education, which has been the normal and successful practice for many years in all medical schools in Great Britain outside London, should become the practice in every school. It is recommended for Government decision that the payment to

any school of Exchequer grants in aid of medical education should be conditional upon the school being co-educational and admitting a reasonable proportion of women students. Every possible step should be taken to see that all hospital appointments of qualified practitioners are filled by open competition and that the sex of the applicant is not a bar to appointment.

### Financial Help for Students

In England and Wales, but not in Scotland, there is a marked difference between the proportion of medical students and the proportion of students in the faculties of arts and science who receive financial assistance. While the faculties of medicine of Scottish universities draw students from all classes of the community, medical students in England and Wales are not recruited from so wide a field as are students in other branches of the universities. The main causes seem to be: (1) misconceptions on the part of parents regarding the amount of assistance that can be obtained towards the cost of medical education; (2) a lack of encouragement to secondary-school pupils to take up medicine as a career.

The committee recommends that grants to medical students should be adequate in amount and should extend over the whole of the period of training. The arrangements for scholarships and grants should be simplified, and medical schools should have larger funds at their disposal to help students and to encourage graduates in other faculties to study medicine.

"It must be brought home to boys and girls, to their parents and school teachers, that there is no profession offering a wider range of interests than medicine; and that children with ability need not be debarred from entering the profession through lack of money."

Selection of students should not be based on examination results alone. There should be an interview before acceptance; and the medical schools should also consider the extent to which aptitude tests can usefully be applied. The selection machinery should be supplemented by arrangements to weed out as early in the course as possible (particularly in the first year) those students who prove unsuitable.

### Supply of Doctors

The number of doctors in civilian practice in Great Britain increased steadily before the war. It is expected that the number will continue to grow for some years to come. In a report on medical man-power the Government actuary calculates that if the total entry of students is enlarged to 2,500 or more, the supply of doctors in civilian practice in Great Britain will grow to at least 50,000 by 1953 and 55,000 by 1958 (increases of approximately 5,000 and 10,000 respectively). This increase in the entry of students is within the capacity of existing schools, and the committee suggests that the first objective should be an expansion of those existing university schools which are below an economic size (normally 100 students a year) rather than the creation of new schools.

### Medical Teaching Centres

The full recommendations of the Goodenough Committee are set out in the general summary of its report occupying over 27 pages. They include the following. The unit of organization for the national system of undergraduate medical education should be a medical teaching centre, consisting of a university medical school, a group of teaching hospitals (parent and associated) in as close proximity as possible to the medical school, and such clinics of the health service of the district as should be used for teaching purposes. Ideally—and the committee thinks this is an attainable objective—they should form a compact geographical unit. While the governing body of each constituent institution of a teaching centre retains full authority in its own field of responsibility, the policy, administration, and activities of the constituent parts should be so interrelated that the institutions function as one in the field of medical education and research.

Every medical school should be a university medical school in the sense that it is an integral part—i.e., faculty, college, or school—of a university. This principle should apply to existing schools and to any new schools which it may be found expedient to establish. There should be a common advisory machinery used by all parts of a medical teaching centre for the selection of medical staff other than junior grades. Grants from public funds for the educational work of the centre should be received through university channels.

The three extramural schools in Scotland cannot meet the modern requirements of medical education efficiently, and it is recommended that they should cease to train medical students. The West London Hospital Medical School, the only non-university medical school in England, should not continue, beyond possibly the next four or five years, to train undergraduate medical students.

A new pattern of staffing is necessary. More whole-time appointments and the payment of salaries to clinical teachers in respect of defined duties are among the changes proposed. The adoption of new machinery in selecting teachers and staff of teaching hospitals is also recommended, together with a reorganization of the educational work of the clinical departments based on the idea of each clinical division having an academic head.

### Medical Schools: Size and Distribution

The present unequal distribution of medical schools and students is recognized, and long-term proposals are made with a view to a decrease in the large number of students trained in Scotland, particularly in Edinburgh and Glasgow, and in Central London. To minimize the concentration of schools in the centre of London, Charing Cross Hospital should move as soon as is practicable to a site in Middlesex, and St. George's to a site in, say, South London, where there is an urgent need for hospital accommodation. It is suggested that the London School of Medicine for Women and the Royal Free Hospital should also consider moving further from the centre of London. Provided that the necessary additions are made to the teaching staffs, accommodation, and equipment, all the existing medical schools in the English Provinces and Wales could be expanded without detriment to the standard of training provided. These schools should enlarge their entries of students as quickly as possible.

"The medical schools should regard themselves as under a definite obligation to do all in their power to meet the need for more doctors, but they should avoid any premature increase in the number of medical students inconsistent with the maintenance of a proper standard of training. To sacrifice the standard of training in any way would be gravely detrimental to the future vitality and success of the health service."

The general conclusions of the committee regarding the establishment of new medical schools are:

(1) The financial resources and the suitably qualified teachers likely to be available will be wholly needed for a long time for the development of existing schools to their full capacity.

(2) To provide a stimulus to the hospital services of an area is not a sufficient reason in itself for the establishment of a medical school. There must first be proof of a national need for another school, and it must be clear that a school at least of the standard of existing schools can be provided.

(3) Any proposal to develop a medical school at one of the independent university colleges should be deferred until such time as the university college concerned has become fully established as a university.

(4) The undergraduate medical schools in London are already too numerous to warrant an addition to their number. The aim should be to secure better facilities for the existing schools and to improve and develop the exceptional facilities of London for postgraduate medical education.

### Postgraduate Education and Research

The kind of postgraduate training and experience required by intending specialists and the means whereby it can be obtained have been examined by the committee as questions of great importance both in the operation of the health service and in the sphere of medical education. On the assumption that the qualification and standards of specialists are determined by some central machinery and that the primary requisite will be approved postgraduate training and experience extending over not less than 4 to 5 years after registration, the committee makes various suggestions, which include the following:

(1) While holding hospital appointments the intending specialist should be regarded as a trainee and be given adequate time for

reading, reflection, and research. He must not be overburdened with routine work and he must be adequately remunerated.

(2) As a rule, before he begins to specialize, he should have at least six months' resident clinical experience of general medicine or surgery.

(3) Every trainee should have the opportunity to devote himself for a period to the extension of his scientific knowledge by laboratory work and study, and provision should be made, by such means as travelling fellowships, for trainees to obtain the benefit of working for a time in suitable hospitals and medical schools abroad.

The committee declares that postgraduate study should be a regular and recognized feature of general practice. Periodic intensive refresher courses should be regarded largely as a short-term expedient; the long-term policy should be to bring general practitioners by various means, such as clinical assistantships, into regular association with the work of hospitals and of specialists.

*Postgraduate Institutes.*—A scheme is outlined for the development of the exceptional resources of London for the postgraduate education of medical practitioners from all parts of the world. This scheme involves the reconstitution of the British Postgraduate Medical School on a federal basis embracing a comprehensive range of postgraduate institutes in all branches of medicine. The committee points out that there is at present a singular lack in Great Britain of facilities for postgraduate training in special subjects, and recommends the development of a number of institutes in the special subjects to serve as the spearhead of postgraduate education and research in those subjects. The universities, in consultation with the professional and scientific bodies concerned, should agree on a national plan.

*Medical Research.*—On this subject the committee says that a community wishing to promote research must first find and train the men who have the ability and impulse for scientific inquiry. It must then create the most favourable conditions for their work and give them the tools they need. Young research workers should mainly recruit themselves, their careers being closely watched and guided. When a worker has proved his research ability and has chosen research as a career, he should be given reasonable security in this career. Medical schools, teaching hospitals, and postgraduate institutes have three important functions in relation to medical research: (i) to discover and train future research workers; (ii) to encourage and facilitate original investigations by members of their teaching staffs; and (iii) to house special research units and workers. Public grants to medical schools and teaching hospitals must include basic research grants, and extra grants will also be needed from public and private sources for the support of special investigations.

### Medical Teaching Centres and the Health Service

Medical schools as partners in the National Health Service should, the committee says, have an appropriate place in the administration of the service. If Central Health Service Councils are established for England and Wales and for Scotland, the universities in the respective countries should be given adequate representation.

Though they will be available for consultation and advice, specialists on the staff of teaching hospitals, if they are to give as much time as they should to the clinical and educational work of the teaching centres, will not be able to undertake regular duties in other hospitals. As a general rule their hospital work, including consultations with members of the staffs of other hospitals or with general practitioners, should be conducted in the hospitals of the teaching centre. The linkage of non-teaching hospitals with the teaching centre must be brought about by means of educational associations developed between a medical teaching centre and all the major hospitals in a wide area around. These associations will evolve in part out of the arrangements made in respect of pre-registration house appointments and in part out of provision for refresher courses for general practitioners, hospital appointments for intending specialists, and other forms of postgraduate education. To help the hospital service generally, and to facilitate a better distribution of specialists, medical teaching centres should make it an established principle that tenure of a post in a non-teaching hospital is regarded as a qualification in favour of an applicant for appointment to a teaching hospital.

# Nova et Vetera

### Dr. WILLIAM GILBERT (1544–1603)

A recent meeting of the History Section of the Royal Society of Medicine was devoted to a discussion of the place of William Gilbert in medicine and in science, and the occasion was the celebration of the quatercentenary of his birth.

Sir Walter Langdon-Brown dealt with Gilbert's life and his place in the medical world of his time. He said that recently the Dean of one of our cathedrals called on an undergraduate of St. John's College, Cambridge, and, observing the arms of William Gilbert on the walls, he asked the undergraduate who Gilbert was. Neither of them had heard of him. Half an hour later Sir Walter had the satisfaction of showing the Dean a copy of the first edition of *De Magnete*. Gilbert was born in Colchester, and all his life he remained proud of this association. The date of his birth is given at varying dates from 1540 to 1544, but there is new evidence that he was really born in the latter year. He matriculated at St. John's, and later became a "physic fellow." In 1570 he began a three-years tour of Italy, and returned as a champion of the experimental method. He settled in practice close to the first College of Physicians and soon became prominent in his profession. He was a Censor of the College for nine years, Treasurer for eight, and he became President in 1600. He was physician to Queen Elizabeth and attended her in her last illness. Gilbert died in 1603, probably of the plague. In his will he bequeathed his library, his globes, his instruments and cabinet of minerals to the College. As a physician Gilbert was very sceptical about the ridiculous claims made for remedies: as he says, "Thus do the smatterers cross swords together and puzzle inquiring minds by their vain conjectures." During his time there was a change in the outlook and function of the universities. His insistence on observation and experiment, his scorn for reliance on mere authority, his hatred of shams and quackery, were not without their effect in combating the pestilential influence of astrology on medicine. He was the first of English modern scientists.

Prof. Sydney Chapman dealt with Gilbert and the science of his time. Apart altogether from his medical work, he was always an ardent student of science. In his early days he studied chemistry, reputedly with success, and throughout his life he paid great attention to astronomy. He was the first Englishman to accept and propagate the revolutionary view of Copernicus and of Giordano Bruno. Despite the time which he devoted to his medical and scientific work, he was no recluse, and his friends included physicians, astronomers, mathematicians, and sailors. He was a friend of Drake.

It is in the field of magnetism and electricity that he has earned enduring fame as the great founder. Gilbert's researches on these subjects extended over eighteen years, and the results were published in *De Magnete, magneticisque corporibus, et de magno magnete tellure* . . . (on the magnet and magnetized bodies, and on the great magnet, the earth), London, 1600. Gilbert paid his own expenses for his work, according to some about £5,000. A great predecessor was Petrus Peregrinus, who three centuries earlier had recognized the poles of a loadstone, and Robert Norman of Limehouse a few years earlier had discovered the magnetic dip. Gilbert showed that the earth is simply a great spherical magnet, and by his experiments he founded the science of geomagnetism. He greatly extended the range of substances known to be magnetic, and he distinguished clearly between magnetic and electric reactions. He recognized the "orb of virtue" (magnetic field), investigated the influence of physical agents on magnets, and collected data as to the direction of the compass in different regions. By his pioneer work on electricity he recognized definite classes of electrics and non-electrics; he showed that damp weather hinders electrification, and that the electric attracts bodies themselves and not the intervening air; and he invented the non-magnetic electroscope. He asserted that the magnetic axis remains invariably in the earth, but he was wrong—as Newton later showed—when he asserted that the earth's rotation is due to its magnetism.

Gilbert dissipated much of the superstition that had hitherto been associated with the loadstone. His book made three great contributions to science: the ordering and extension of magnetic knowledge; the foundation of knowledge of electricity; and his conception of the earth as a great magnet. It was praised by men like Galileo and Kepler, and he has long been recognized as "the father of the sciences of geomagnetism and electricity." E. A. U.

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The British Hospitals Association has issued from 12, Grosvenor Crescent, S.W.1, two printed documents, one being a suggested form of constitution for Nurses' Representative Councils prepared jointly by the Association and the Royal College of Nursing on the advice of their liaison committee, and the other giving model forms of conditions of service and agreement for the engagement of student nurses by hospitals.

# Correspondence

## Chartered Physiotherapists

SIR,—The Chartered Society of Physiotherapy, having recently received permission from the Privy Council to change its name from the Chartered Society of Massage and Medical Gymnastics, has decided that the time is fast approaching when it must make some drastic changes in the training of its future members, and it is therefore proposed to increase the length of training to three years.

The time would appear propitious to make clear the difference between chartered physiotherapists and those who advertise themselves as qualified by correspondence, short courses, etc., to practise this form of physical treatment. In order to become chartered physiotherapists candidates are required to undergo a full-time training of two and a half years' duration at one of the recognized schools of physiotherapy attached to hospitals (usually those with medical schools). They must have gained the school certificate or its equivalent, and have some knowledge of chemistry, physics, and general science. During the training the average working day is 6 to 7 hours. After about three months' concentrated preliminary training 2 to 3 hours daily are spent in the wards and out-patient departments of some large hospital. This work is carried on under trained supervision and often under the direction of a specialist in physical medicine. Experience is gained by attendance at clinics examining orthopaedic cases, recent injuries, and other surgical and medical conditions. The remainder of the day is devoted to theoretical and practical lectures and demonstrations. All private study has to be done in the evenings and at week-ends, and the average student finds a minimum of 14 hours a week necessary to keep up with the work.

The examinations for the certificates of the Chartered Society include four 3-hour papers in anatomy, physiology, kinesiology, electrotherapy, theory of massage, and the application of these subjects to medical, surgical, orthopaedic, and other cases, and about two hours' practical and oral examination in the same subjects. The examiners include professors of anatomy, members of the medical profession interested in physical medicine, and Chartered Society of Physiotherapy teachers of not less than five years' standing. In order to maintain the high professional and ethical standards of the Chartered Society, chartered physiotherapists are required to give a written undertaking to work only under the direction of registered medical practitioners and to conform to certain other rules.—I am, etc.,

HERBERT L. EASON,
Chairman of Council, Chartered Society of Physiotherapy.
Tavistock House (North), W.C.1.

## Sedatives for the "Bombed"

SIR,—Being in frequent contact with children at rest centres or at evacuation sessions who have been bombed, I feel that more sedation therapy might be of great value. One child of 18 months, who had been blown out into the garden, was unmanageable when the siren went and had not slept adequately for several days and nights. On sod. brom. 3 gr. t.d.s. and once at night, and chloral hyd. 1 gr. 5 *in die*, he slept almost continuously for two days and nights, then, renewed, able to smile and to ignore the sirens, he remained fit so long as he continued on sedation. If the mother took him out and he missed his dosage the old symptoms of screaming returned. He was finally evacuated, laughing and cheerful after a dose of sod. brom. 5 gr., chloral hyd. 1½ gr. Several other children, some of whom had been in hospital with injuries, on rejoining their families at the rest centre were in a highly nervous, tense state. The mothers have been very grateful for sedative treatment. The children are as lively as crickets on it, and their nervous tension is released.

In private practice among adults I have used luminal 1/2 gr. at night as preventive of the fatigue that accompanies nervous tension. Some of these women had tiny children in their care. They have all been very grateful, and have said how much better they felt on it. One week's treatment and they got their "second wind" and were able to continue without. On admission to rest centres after bombing the adults get sod. brom. 12 gr., sod. barbit. 2 gr., repeated as required.

I have to thank Dr. Yellowlees and Dr. McFarlane for their encouragement.—I am, etc.,

London, S.W. M. STEWART.

## Site for Intramuscular Injection

SIR,—I was very much pleased to see that Prof. Grey Turner has made use of his great influence again to advocate abandonment of the gluteal site for intramuscular injections and recommends the outer side of the thigh as the proper site for such procedure. No doubt many surgeons do give instructions to their juniors and their nurses in accordance with Prof. Grey Turner's recommendations, but in our teaching hospitals, apparently, students are still taught to inject into the gluteal muscles. Only the other day a student at one of our great London hospitals told me that he had been taught to do this.

It is difficult to see why the gluteal region was ever chosen for this purpose. Apart from the major dangers to which Prof. Grey Turner calls attention, the gluteal muscles are often covered with a thick layer of fat, and it is not infrequent for the injection to be given into this layer and not into the muscles. The result is often a deep slough, which takes weeks to separate, and if the patient is confined to bed the resulting discomfort can be readily imagined. By mapping out on the outer side of both thighs three zones—upper, middle, and lower—six areas free from any dangerous structures are available for injection, and a nurse can ring the changes many times without using the same site more than once. Recently, for particular reasons, I had to order a course of sulphonamide intramuscular injections in a medical colleague. No fewer than fifty injections were given in this way without causing more than trifling discomfort.

I trust that the practice so forcibly advocated by Prof. Grey Turner will soon become the recognized teaching.—I am, etc.,

London, W. SIDNEY BOYD.

SIR,—As one who has administered perhaps more intramuscular injections than any other man living, I applaud Prof. Grey Turner's letter (July 8, p. 56) emphasizing the undesirability of choosing the central buttock as the site for any deep injection. Personally, I should have thought that the piercing of the sciatic nerve would sufficiently warn the operator to proceed no further; but such an irritating substance as quinine might surely cause neuritis, even if the nerve were not actually penetrated by the needle.

There is another danger when substances dissolved or suspended in oil are injected deeply in or around the sciatic notch—that of oil embolus. Here the needle will be travelling in the direction of larger veins and may deliver the oil right into the lumen of one of them. The effect, if not dangerous to life, is extremely disconcerting. The patient, even when anaesthetized, gives a characteristic cough at the instant the plunger is pressed down, shows marked symptoms of shock, and may retch uncontrollably for hours or even days. Five such accidents have occurred in my experience, all of them during injection into the "forbidden area," and I am convinced that when this part of the body (so often the seat of rheumatic fibrositis) requires to be locally injected only such medicaments must be used whose inadvertent introduction into a vein would be a matter of no particular anxiety.—I am, etc.,

London, W.1. G. LAUGHTON SCOTT.

*** In an answer to a query on this subject published under "Any Questions?" (June 12, 1943, p. 716) it was observed: "The tendency nowadays, however, particularly in the case of the sodium salts of the sulphonamide drugs, is to choose the antero-lateral aspect of the thigh (vastus externus) as the least dangerous site for intramuscular injection."—ED., *B.M.J.*

## Problem of the Small Bladder

SIR,—May I have the privilege of a little space in your columns to draw attention to the problem of the small muscular bladder in young males, and invite comment and correspondence on this condition from more experienced and competent urologists. It is apparently little known, and I cannot find much about it in the textbooks or literature. The

typical picture is that of a young male who gives a history of frequency and urgency all his life. The stream is good and there is no pain, but he finds he must rise several times at night and even occasionally wets his bed. Conditions in the Army usually force him to seek advice, and many of these patients are sent in for urinary investigation as cystitis or enuresis. Recently I have also investigated a boy of 14 and a girl of 10.

One is inclined to regard these people as neurotics after taking their history, and to conclude that they have a bladder neurosis bad enough to disturb them even during sleep. The urine is usually clear and sterile and the stream large and forceful, but the amount passed is rarely more than 10 oz. The most important feature is that there is no residual urine, and this is the first factor to be excluded.

Cystoscopy shows a bladder of small capacity, often no more than 6 to 10 oz., though on occasions I have found it as much as 15 oz. There is very marked trabeculation with prominence of the trigone, and from time to time the whole musculature goes into spasm, forcing urine past the cystoscope, which must be firmly held or it may be pushed out of the bladder. Renal function is usually excellent. So far as can be determined with the cystoscope or cystourethroscope, there is no stenosis or hypertrophy of the internal sphincter urethrae. Intravenous pyelography shows a normal upper urinary tract, but the bladder is usually shown by a small round dense shadow of the excreted substance. We know, of course, that prostatic obstruction due to hypertrophy of a tight internal sphincter may cause symptoms quite early in life.

I have always assumed that in these men there should be some dysuria, a slow stream, and evidence of residual urine, and in the later stages even a dilated bladder, but I suppose it is possible that as a reaction to such partial obstruction the bladder muscle may hypertrophy and contract down rather than dilate, thus preventing the accumulation of any residual urine and maintaining a good forceful stream.

One of the problems in urology is to decide whether there is constriction of the internal meatus. The Macarthy resectoscope will perhaps show it in the majority of cases, but one is hardly justified in passing it as a routine for the purposes of diagnosis. The problem as I see it is as follows: Are these small muscular bladders a handicap which the patient is born with and doomed to tolerate all his life, or is this a hypertrophy secondary to an internal meatus obstruction; and if this is the case can we help these people in the early stages by a perurethral resection of the faulty sphincter? This problem needs publicity and consideration and discussion, for I presume that other E.M.S. hospitals are no doubt consulted by many similar cases drawn from our fighting Forces. After the war these men may find themselves able to cope with their frequency in civil life, and will not so readily seek advice, and never again shall we have such an opportunity of helping these unfortunate people.—I am, etc.,

Chelmsford. M. D. SHEPPARD.

## Bone-marrow Transfusion in Children

SIR,—Replying to the letter from the Alder Hey Hospital (June 17, p. 826), we fully agree that the intravenous technique can be easily acquired by residents on a children's unit. It is a fact, however, that many doctors never have this opportunity.

With increasing experience we have found it desirable to develop alternative methods of parenteral fluid administration, such as the scalp-vein injection of small quantities of fluid, and the marrow route. The marrow route would seem to be the simplest method at present available, and is therefore reasonably well suited to institutions which do not cater routinely for intravenous therapy in children. We would suggest that the bone-marrow drip may be usefully employed for children in the following circumstances:

1. Babies in whom the veins in the usual sites (ankles, wrists, and cubital fossae) have been used. On several occasions we have seen infants sent to this hospital whose veins have been seriously mutilated—even the femoral vein in one case. With these babies it is essential to find an alternative route.
2. Shocked and premature babies in whom the minimum of disturbance is desirable.
3. Patients in whom repeated blood transfusions have been given, or will be required, such as haemophiliacs and aplastic anaemias.

The needle described by Gimson (*Journal*, June 3, p. 748) has also proved eminently satisfactory for taking marrow smears from children of all ages. The danger of osteomyelitis should not be forgotten, but the immediate emergency under the above-listed circumstances justifies the problematical risk of infection.—We are, etc.,

JANET D. GIMSON.
PATIENCE BARCLAY.
Hospital for Sick Children, Great Ormond Street. F. L. KING-LEWIS.

## Why Tie the Cord?

SIR,—Dr. Price's pertinent question (June 3, p. 772) and subsequent correspondence lead me to record the custom of another tribe (Lokele) of primitive forest folk in the Belgian Congo. The cord is never severed until the placenta is delivered. The mother is then handed a native razor, which she strops on her bare thigh. She then cuts the cord herself, about 8 to 10 in. long, milks out the contained blood, and spits on the end; no ligature is applied.

The strength of conviction against severing the cord while the child, alive or dead, is still joined to its mother is such that I have known a woman brought to hospital after a two-days journey in canoe for removal of retained placenta, to which the dead child was still attached.

The length of cord left probably safeguards against sepsis, for it shrivels in the dry atmosphere of the overheated hut before infection can ascend to the umbilicus. Horror was previously expressed at seeing it cut the regulation 3 to 4 in., and indeed the only case of fatal sepsis I saw in 16 years was in a child born in hospital. It is always difficult to disentangle sense and nonsense in savage custom and superstition, but may it not be that the refusal to separate mother and offspring means that the child gets an extra ounce or two of blood when the placenta is expelled, and that ligation is quite unnecessary at that stage, if ever?—I am, etc.,

Chalfont St. Giles. CLEMENT C. CHESTERMAN.

SIR,—The following experience may be both interesting and amusing:

In the autumn of 1914 I was helping in a large French military hospital in Normandy (in a town now in the central picture). One afternoon the *chef de cuisine* rushed excitedly into a ward where the surgeon and I were dressing a wound and said his wife had given birth to a baby in the kitchen. I seized a tray with a jar of ligatures, a bowl of sea-water—strained, boiled, and diluted with ordinary sterile water: this was all the French surgeons used to cleanse the wounds—and we went to the kitchen, which was in the dark and gloomy basement. There we found the woman on her back on the scullery floor, also the baby—alive. I put a few ligatures together and knotted them, and on handing them to the surgeon, who was a middle-aged Russian lately practising in Paris, he shook his head and said, "*Non, non, madame, pas nécessaire là*," and, having cut the cord some 6 or 8 in. from the umbilicus, deftly with a twist knotted it. Then dipping his fingers in the sea-water he pressed on the knot for a minute or so. At this stage the *chef* returned with a bottle of champagne, and we four, including the mother, drank to the happy event. The baby thrived, so did the mother, who was back in the kitchen in a week.—I am, etc.,

Roche, Cornwall. G. A. JACKSON.

## War Surgery

SIR,—With great interest I read General Mitchiner's article (July 8, p. 37), but as an officer i/c Surgical Division of a large and busy general hospital in North Africa during that campaign and as a surgical specialist in France 1914–18 I am also in a position to compare some of the results, and am not in agreement with General Mitchiner on all points.

His remarks on sepsis do not agree with the facts in North Africa, where the wounded arrived at the base with little sepsis after travelling several days, as was the case in the earlier weeks. These men had all had the routine excisions, application of sulphonamides, with vaseline-gauze drains, and the parts covered with plaster-of-Paris, and it was rare to find a grossly infected wound—such a contrast to what we were used to in 1914–18. Another point of interest was the very

small number of cases of massive gas gangrene, even in the large wounds of the buttock and thigh, although anaerobes were present in some of the cases.

On the matter of amputations, the only criticism we could make was that the forward surgeons had worked hard cleaning up severely damaged tarsal and metatarsal injuries, which reached us in good condition and were eventually sent on to U.K. healing, but with feet which it was difficult to imagine would be weight-bearing and which could with advantage have been amputated at a forward C.C.S.

With regard to burns, of which there were a great number, many accidental, but large numbers coming from among the survivors from the sea, the results of cleaning under anaesthesia, removing dead skin, then applying sulphonamides and covering with vaseline gauze, and with infrequent dressings done only at several days' interval, were very good. Our largest batch was sixty-three survivors from a ship which burned after being torpedoed, nearly all severe, of whom only two died.

In conclusion one can only say that having seen the surgery in two wars, there is no doubt that the wounded man is being exceedingly well treated at the forward centres, and reaches the base in a better condition in this war than in the last.—I am, etc.,

London, W.1. D. DENHAM PINNOCK.

## Clinical View of Shock

SIR,—The symptoms of shock described by Mr. Zachary Cope (July 8, p. 35) and the changes in the body, and particularly in the circulation, are identical with those shown after an injection of histamine, used so often in the treatment of mental disease, even to the flush on the face. Histamine is produced in every form of shock, and it is most significant that a shock-producing body is found in fresh voluntary muscle in shock, where histamine is formed in large quantities but soon disappears. Histamine might therefore be the cause of shock.—I am, etc.,

HORACE HILL, M.R.C.P.,
Laverstock House Mental Hospital, Salisbury. Medical Superintendent.

## Repairing the Perineum

SIR,—Miss Josephine Barnes expresses herself as glad of an opportunity of "protesting against the prevalent and pernicious practice of giving a general anaesthetic for repairing the perineum." I trust she will not mind if I use her opening as an opportunity for protesting against the even more prevalent and equally pernicious practice of giving *no* anaesthetic for this procedure.

As a student at University College Hospital I imagined that I was learning from Prof. Browne the standard way of repairing a perineum. I was amazed, on coming out into the cold world eleven years ago, to find that I was mistaken. The method I had been taught has been a surprise to every midwife that I have encountered! It would appear that the usual approach to the problem is to see it as a most unimportant adjunct to the delivery. "It is all over now, Mrs. Blank, except for a couple of stitches, and we'll soon get those in." Mrs. Blank is then invited by nurse to "bite on this towel," to "hold my hands and scream if you want to," or some such, and a couple of sutures are hopefully whipped in to a struggling patient.

The essential advantage of what I will venture to call the U.C.H. method lies, as I see it, in the possibility it offers of a proper approach to the problem. The repair of a torn perineum is a most important procedure, not lightly to be undertaken. Miss Barnes touches upon the dangers of a deficient perineum. I would add that a sound perineum is more important in maintaining a happy marriage than is a pretty face: he who carelessly spoiled a pretty face would probably have to pay damages to his patient, yet the perineum can be spoiled and no penalty paid!

For a perineum to be properly repaired it is necessary: (1) for the operator to appreciate the importance of his task; (2) for the operation to be painless, so that no matter how long the work takes the patient remains comfortable and co-operative (the U.C.H. technique ensures this); (3) the operator must take his time (the U.C.H. technique allows this); (4) the operative field must be thoroughly exposed (more likely with a leisurely approach to the leisurely operation made possible by the U.C.H. technique); (5) the operator must be comfortable; and (6) the light must be good (how many G.P.s carry a good head-lamp in their midwifery bags?). Miss Barnes says that local infiltration anaesthesia is painless and safe. May a very average G.P. add, for the benefit of those G.P.s who have not yet ventured to try it, that it is also extremely simple? The satisfaction of having done a thorough job (without hurting the patient) more than compensates for the extra time taken.

In one other detail the technique as taught to me by Prof. Browne differs from that generally used. I was taught to use for each of the interrupted sutures in the skin a twelve-inch length of silkworm gut, to leave the ends uncut after tying, and finally to gather the ends together, to knot the bunch, and to wrap the knot in sterile gauze. The extra comfort to the patient, as compared with the more generally used method of cutting the silkworm gut short after tying, is immense.—I am, etc.,

West Bromwich. D. SAKLATVALA.

## Results of Colles's Fracture

SIR,—As an old practitioner I write confirming Dr. Abercrombie's remarks about the scandalous abuse of plaster-of-Paris by the bulk of the profession (July 8, p. 55). For years we were taught to start movement of a "Colles's" hand within 48 hours of the fracture, and to continue to do so every second day for 2 to 3 weeks. Of course we used the old wooden splint with a straight dorsal splint. The result was that within 4 to 5 weeks the patients were about their jobs as usual. The slight deformity left was of little consequence.

Some years ago you published a letter of mine, instigated by Prof. Hey Groves's letter protesting against the blind use of plaster-of-Paris splinting, and maintaining that if plaster-of-Paris must be used it should be applied in the Croft method—i.e., with a starch bandage that can be slit up for inspection.

An old lady has broken her forearm; at a hospital it has been so mismanaged that it has been replastered four times. A lady slipped in her kitchen and fractured both tibia and fibula three inches above the ankle. It was put into plaster, not *touched* for three weeks, and on release the whole foot was so badly retracted that operation was undertaken to restore it. Result, gangrene of the foot, which had to be amputated!

The results that I have heard of from this mad dependence on plaster-of-Paris make the old G.P. grieve for the unfortunate public and for the honour of his profession, which in other matters has attained such distinction.—I am, etc.,

VAUGHAN PENDRED.

## Wrapping for Biopsy Material

SIR,—The recent shortage of gutta-percha tissue has led to the pathologists' receiving biopsy material wrapped in a variety of very unsatisfactory substitutes. In suggesting a satisfactory wrapping material we feel impelled to recall the great importance of reducing to a minimum the time between the surgical removal of the tissue and its visual examination by the pathologist. When tissues are of such a nature that naked-eye examination gives no indication of the changes likely to be found microscopically, then by all means let them be immediately immersed in fixative solution (such as the one advocated by one of us (A. C. L.) in the *Journal* of Nov. 20, 1943, p. 644). But if they be large in size or otherwise demand the pathologist's scrutiny before fixation (he should be the judge of the type of fixative most suitable for the particular tissue), then it is essential that the tissue be enclosed in a wrapping that is highly water-resistant. It has been found that the variety of transparent wrapping material marketed as "Cellophane M.S.S.T." is a satisfactory and also a cheap substitute for gutta-percha tissue; the thinnest grade—M.S.S.T. 300—is adequately strong and the cheapest, since the material is sold by weight.—We are, etc.,

M. K. GILMOUR.
Glasgow University. A. C. LENDRUM.

## Rheumatic Fever and the Sulphonamides

SIR,—The following case history is of interest in view of the opinion recently stated by a prominent physician that rheumatic fever would in the near future cease to be of importance owing to the prophylactic value of the sulphonamides.

T. W. was admitted to hospital in January, 1944, with an acute suppurative otitis media. He had no history of previous illness of any sort. He was put on to sulphadiazine in the usual dosage, and started to improve immediately, the condition having cleared up by the 10th day, although he was still on the drug. On the next day he developed a painful swollen and tender right sternoclavicular joint which lasted for about 48 hours. During the following week he developed pain, swelling, and tenderness successively in the left shoulder and knee and the right shoulder, with a temperature of 102° and malaise and sweating. The blood sedimentation rate was 46 mm. in 1 hour, and there was a trace of albumin in the urine.

A diagnosis of rheumatic fever was made and the patient was put on to a course of sodium salicylate. He made an uninterrupted recovery from this time, and was discharged on the 47th day of this illness. When seen a week later he was found still to have a mitral systolic murmur which had developed during his stay in hospital, and electrocardiographic evidence of residual myocardial damage.

It will be seen, therefore, that this man was actually at the end of a course of sulphadiazine when he developed an acute first attack of rheumatic fever, which incapacitated him for six weeks and left residual myocardial damage.—I am, etc.,

W. S. C. COPEMAN.

## Chemotherapy in Otitis Media

SIR,—As a general practitioner I find myself in complete agreement with Mr. Steele's views that the early and adequate exhibition of the sulphonamides has revolutionized the treatment and prognosis of otitis media. If Mr. Dingley complains that the sulphonamides are used indiscriminately in these conditions, the answer is "Of course they are." If an empyema thoracis develops it is not evidence that the original pneumonia was wrongly treated with sulphapyridine, nor, I maintain, is it indicative of wrong treatment if an "empyema" of the middle ear develops after sulphonamide treatment of an acute catarrhal otitis media.

There are two dangers against which we must guard—the use of sulphonamide tablets as though they were a special form of aspirin, and the overlooking of the silent mastoiditis. With a realization of the many pitfalls, I agree with Mr. Steele that the general practitioner is the best judge of the value of chemotherapy in otitis media, and that it has replaced the myringotome as the first line of defence.—I am, etc.,

Camberley. F. BROCKINGTON.

SIR,—Further to the interesting letters of Mr. G. H. Steele and Mr. A. R. Dingley, are we not tending to wrap the "acute ear" and its treatment in too much mystery, thereby confusing and frightening the average G.P.?

As a G.P. who has seen a goodly number of patients—adults and children—with "acute ear" infection during the last four years, I consider that the history—how sudden the onset, the severity of the pain, when the pain was first noticed—in conjunction with the general systemic disturbance, temperature, appearance of the patient, etc., is extremely important before proceeding to the actual inspection of *both ears* and the throat. A little time taken over this will often gain a child's confidence and make him more co-operative. We all know the difficulty there can be in giving an opinion on an ear in a wriggling, howling urchin, with a small meatus partially blocked by a little wax and epithelium. This should be gently syringed away rather than removed by a wax hook, so that an adequate view of the drum-head can be had. I have at various times postponed the examination till such time as a whiff of ethyl chloride could be given to the child, and the ear condition evaluated. Previous preparation should always be made for a myringotomy, which can be carried out there and then if required. It is my firm opinion that if there is the slightest suspicion of bulging of the drum-head a wide paracentesis should be performed as soon as is convenient and sulphonamides administered. If careful aural toilet be done by someone adequately trained and experienced 99% of these ears will clear up quickly and easily.

The subacute or catarrhal otitis media with an injected drum-head, which so frequently "clears up" under sulphonamide therapy, clears up just as well with aspirin and menthol inhalations. It is in those whose temperature has been crashed down by sulphonamides, whose pain has gone, but in whose middle ears there was pus, that one so frequently finds some time afterwards impaired hearing, some general vague malaise, and a drum-head which has not regained its normal lustre and appearance, due to purulent residue left behind without drainage. What a dramatic improvement takes place when the drum-heads of these are incised and free drainage given! One wonders whether there will not be many more adults in ten to twenty years' time with sclerosed ossicles and impaired hearing, definitely ascribable to sulphonamide therapy without drainage.

I would reiterate my experience and say, Do not temporize, but do an adequate paracentesis, and then start the sulphonamides in doses sufficiently large to be effective.—I am, etc.,

Pinner Green. S. H. CURRIE.

SIR,—Mr. A. R. Dingley, in his instructive article on some dangers of sulphonamides in ear infections (June 3, p. 747), quotes a case of pneumococcal meningitis complicating a middle-ear infection in which, he states, operation (mastoidectomy) was performed "too late to save the boy's life." It would have been interesting to have had the C.S.F. findings in this case.

I believe it is still the practice for aural surgeons to operate on these cases, but while I am not aware that much success can be claimed for mastoid drainage in well-established cases of pneumococcal meningitis, almost phenomenal cures have been obtained by sulphonamide therapy even where mastoid drainage was omitted. Mastoid drainage appears to be indicated in cases of localized subdural abscess, but I suggest that in very ill patients with a more generalized meningitis the preferable treatment is sulphonamide therapy with possibly mastoidectomy when the patient's condition permits.

Though one may doubt the wisdom of subjecting these cases while critically ill to a major operation, sulphonamides should never replace myringotomy where it is indicated in the treatment of any case of otitis media.—I am, etc.,

Stockport. L. A. QUIRK.

## Ether and the Oxford Vaporizer

SIR,—Prof. R. R. Macintosh, in his reply to my letter, has sought to minimize the incidence of vomiting after the administration of ether through the Oxford vaporizer, disclosed by the report of Drs. Mushin and Wood, by claiming that the post-operative observation of the cases recorded was more meticulous than is usual. Such careful recording of facts is what we have come to expect in reports emanating from his department at Oxford; I had already made due allowance for this. Nevertheless, of the 66 patients, in the series of 89, who vomited, 41 had one to three bouts of vomiting and 25 had over four bouts of vomiting; I cannot think that any great clinical acumen was required to record these facts, nor do I suppose that any of the patients were in any doubt as to their unhappy condition!

Such an incidence of post-operative vomiting is neither more nor less than one expects after ether, and, I claim, fully supports the main contention of my letter that, contrary to the over-enthusiastic reports of users of the Oxford vaporizer, the ill effects of ether upon the patient, of which vomiting is but one example, are not materially lessened by the use of the vaporizer.

Dr. A. D. H. Simpson's letter reads as strangely to me as, he states, did mine to him. He imputes to me words I did not write and meanings I did not imply. I did not reveal the truth that the vaporizer delivers ether; I deplored the fact that it does so. I did not question that ether was the agent employed in the experiment, neither did I mention the concentration of ether vapour in the inspired mixture or its relation to the position of the tap. May I point out to Dr. Simpson that while ether remains the yardstick against which other agents are measured for safety it also remains the example of most that is undesirable in an anaesthetic agent in assessing

the merits or demerits of newer agents. I venture to predict that if any new anaesthetic agent, possessing a fraction of the disadvantages recognized and accepted in ether, were introduced to-day it would, if I may use such an expression, be "thrown out on its ear" after the shortest of trials. The safety of an anaesthetic agent, always excepting chloroform, is, and always will be, directly proportional to the skill and experience of the administrator. In proper hands cyclopropane, divinyl ether, trichlorethylene, and pentothal are as safe as ether, and allow any operation to be performed with a minimum of discomfort and ill effect to the patient.—I am, etc.,

Bournemouth. S. F. DURRANS.

### Prevention of Industrial Dermatitis

SIR,—No one with experience of skin cleansing after contact with cutting oils, grease, and paraffin by means both of my neutral sulphonated castor-oil mixture and of barrier creams can possibly agree with Dr. L. B. Bourne (July 8, p. 57) that just as much co-operation is demanded from the worker in the former as in the latter method. All workers desire to wash on ceasing work, and the method I advocate provides the means of so doing rapidly without the use of soap, which too often in these days is not available. Dr. Bourne's supposition that the factories in my medical charge have unusually good washing facilities is erroneous. In some sections, of necessity, only a bucket of cold water is available without soap or towel, but the results of using the skin-cleansing mixture in such case are equally as good as where proper washing places exist. Dr. Bourne rightly stresses the necessity for the selection of workers, protection by machine shields and protective clothing, inspection of the skin, and cleanliness. These are the A B C of preventive methods, but the first cannot be adequately enforced under war conditions of labour, while the last is impossible with soap and water in machine shops, but is perfectly achieved in a minute or two by the method I use, and I suggest that Dr. Bourne retain an open mind until he himself has seen its results. He can obtain my mixture from Messrs. Reynolds and Branson, 13, Briggate, Leeds, 1, together with instructions for its use.—I am, etc.,

N. HOWARD MUMMERY,
Medical Officer, Aircraft Factory.

### Timing of Schäfer's Method

SIR,—I must disagree with Dr. Chapman's reasoning (July 8, p. 57) in his preference for the timing of Schäfer's method given in the *R.A.M.C. Training*, 1935. Most surgeons in the St. John Ambulance Brigade have taught their classes—quite rightly in my opinion—that the mechanics of artificial respiration by Schäfer's method are exactly the reverse of normal respiration, in that normal inspiration is an active muscular process, while artificial inspiration is passive, depending entirely on the natural elasticity of the diaphragm and abdominal contents after the pressure of the hands is released for the entry of air into the thorax. Similarly, normal expiration is a passive act while artificial expiration is the active part of the process.

The mechanics of the act being thus reversed, it seems only reasonable that the timing equally should be reversed, so that the passive part of the cycle in each instance should be the longer. This, as Dr. Chapman points out, is the method adopted by both the St. John textbook and the Royal Life Saving Society.

Eve's rocking method in my opinion is not comparable, as the up-and-down movement of the diaphragm and abdominal viscera by gravity makes both inspiration and expiration into active processes.—I am, etc.,

Rochdale. A. M. MCMASTER.

### Vitamin B Deficiency in Allergic Patients

SIR,—I have read with particular interest the excellent article by J. G. McSorley and L. S. P. Davidson in your May 27 issue (p. 714), which has just arrived. In my recently reported studies of food allergy I have had numerous occasions to combat a deficiency of the "unknown liver factors" of the vitamin B complex. The early symptoms of such deficiency have been nervousness, anorexia, tiredness, with weakness and tachycardia in some. The quantity of liver extract (Lederle) needed to maintain these patients is frequently much larger than the doses suggested in the package circulars—as much as 12 capsules daily of the powdered preparation or 6.5 c.cm. of the "parenteral" fluid.

A number of patients with allergic sensitivity to one or other ingredient in these mixtures (proteins of beef and pork, orange, cocoa, vanillin) have been encountered. Attempts at desensitization in such cases are unrewarding and expensive, but I have found that the B deficiency in these patients can be perfectly met with baker's yeast, *provided a sufficient dosage is prescribed*. A few patients do well with only one and a half cakes of Fleischmann's standard product daily; the others must have from four to seven cakes daily for complete relief of the symptoms of B deficiency.

I have not yet seen a patient who is sensitive to both liver extract and yeast; but one patient highly sensitive to yeast is fortunately not sensitive to beef or pork, taking daily 6.5 c.cm. of the parenteral preparation (Lederle) by mouth. It is important in some persons to begin treatment with yeast with *small* quantities, say one-half cake, crushed in some beverage, and to increase this gradually. Large doses taken at first often cause unpleasant gas formation and belching.—I am, etc.,

ARTHUR F. COCA, M.D.,
New York. Medical Director, Lederle Laboratories.

### Gastric Ulcer with Hyperpiesia

SIR,—I wish to report a rather unusual case of gastric ulcer. I was called in to see the patient for the first time on Dec. 28, 1940, during heavy blitzes in Liverpool. He had had a very severe haematemesis followed in due course by melaena. He was kept in bed on sips of cold water and hypodermic injections of morphine for two days. This was replaced by milk diet until melaena cleared up, and he was then put on a normal gastric ulcer regime—an iron preparation in tablet form and injections of a liver extract.

He gave a history of gastro-enterostomy in 1933 at the age of 48 for pyloric obstruction, operation revealing a large pyloric ulcer. An interesting point is that his brother had partial gastrectomy for a similar condition at the age of 48. My patient, a well-nourished man aged 55, had had no gastric symptoms since his operation 7 years previously. He was *x*-rayed after his attack, and the radiologist reported a healing gastric ulcer at junction of middle and upper thirds of lesser curvature of the stomach, with hypotonic stomach. The surgeon wished to perform partial gastrectomy, but the patient wished to continue with medical treatment. He remained on gastric ulcer diet and the tablets and injections, with complete clinical recovery.

He returned to his normal habits—moderate smoker, occasional glass of beer and no restrictions of diet, and I did not see him again until Jan. 17, 1943, when he complained of dyspnoea on exertion, dizziness, and headaches. On examination his blood pressure was 210/110, and after treatment with phenobarbitone and theobromine tablets, one morning and night, his symptoms improved, but B.P. only dropped to 190/100 by Feb. 7, 1943. He remained free from symptoms until March 23, 1943, when he had another attack of melaena, and his B.P. dropped to 150/80. With general care he improved until Sept. 19, 1943, when his B.P. had again risen to 210/115, where it remained until June 8, 1944, when he had another attack of melaena, which continued until his B.P. fell to 150/85. He is at present on the iron tablets, the injections of liver extract, and plain diet.

It is rather remarkable that his gastric ulcer, the cause of his haemorrhages, has given rise to no gastric symptoms. His haemorrhages have all been related to periods of overstrain and mental stress, factors in a hyperpietic likely to cause cerebral haemorrhages. I feel that his ulcer is acting as a "safety valve," and suggest that this gastric ulcer was produced by local devitalization of stomach mucosa due to thrombosis of a small gastric artery which was probably arteriosclerotic. This would account for the ulcer being symptomless. The artery lying at the base of the ulcer crater bursts at periods of mental strain, and bleeding continues until his blood pressure has dropped to 150/110—about right for his age. Under these circumstances I consider that alkalis are not indicated in this type of case, and all efforts should be concentrated on lowering the blood pressure by drugs and diet.—I am, etc.,

Liverpool. RICHARD H. BRACEY.

### Progesterone

SIR,—I have followed with amused interest the correspondence between Dr. Walter Calvert and Mr. Wilson Clyne on the action of progesterone during pregnancy. May I point out that this theory was, so far as I am aware, first published by Mr. R. Christie Brown in the *Journal of Obstetrics and Gynaecology of the British Empire*, autumn, 1932, page 596.—I am, etc.,

London, W.1. RICHARD SANDS, M.R.C.O.G.

### Chemoprophylaxis of Gonorrhoea

SIR,—Your reviewer, in his comments on Dr. Herrold's book, represented that American author as being opposed to the prophylactic use of sulphonamides. In my letter (June 24, p. 855) I pointed out that Herrold recommended that the exposed individual should receive sulphonamides prophylactically from his doctor. Your reviewer now discloses (July 8, p. 57) that it is he, and not Herrold, who objects to chemoprophylaxis; and he goes on to make the extraordinary suggestion that administration of 6 g. of a sulphonamide on the day following exposure is likely to lead to the sensitization of large numbers of individuals.

There is much yet to be learned about sulphonamide sensitization, but it is generally assumed that it usually occurs towards the end of a course of treatment extending over a number of days. If there is evidence that one day of treatment (or of prophylaxis) has been ever or often the cause of sensitization, I hope your reviewer will tell us about it. It is the therapeutic and not the prophylactic use of sulphonamides that is likely to result in sensitization.

Theoretically, it is possible that chemoprophylaxis (like chemotherapy) may be responsible for latent gonorrhoea, but adequate dosage is believed by many to be the best safeguard against this danger. Surely no one will regard as inadequate a prophylactic dosage of 6 g., having in mind that the total amount of drug required to cure an established infection is far greater than that needed to deal with the relatively small initial inoculum.

My final observation is one of regret that your reviewer has so patently not observed that impartiality which readers are entitled to expect in the columns of the *Journal*.—I am, etc.,

May & Baker, Ltd., Dagenham, Essex. ROBERT FORGAN, M.D., D.P.H.

### Service Medicine

SIR,—Service medicine has been assessed both by junior medical officers and by others of higher rank, like Air Cdres. Cade and Conybeare (April 22, p. 574). The junior officers have, in most instances, preferred to remain anonymous, and this significant fact is, I suggest, quite explicable when the last paragraph of the letter from Air Cdres. Cade and Conybeare is read: "It has been our experience that in the rare cases in which we have heard this complaint from medical officers the officer is either lazy or incompetent or else he is one of those disgruntled persons who is primarily interested in his own comfort and career rather than his contribution to the war effort."

Junior officers seldom criticize because they fear that this type of judgment will be made of them by those senior officers who are responsible for appointments and promotion. This fear may be unfounded, but that it is widespread is doubted only by those whose high rank prevents them hearing the day-to-day talk in mess or wardroom. The junior officer is convinced that criticism does not pay, and the letter from the Air Commodores will do nothing to destroy this—possibly unfounded—conviction.—I am, etc.,

Wolston. G. CAMPBELL.

SIR,—A fact not so far noted is that a system which gives reasonable results in a closed disciplined community of picked lives may not be suited to dealing with a mixed populace. Even so, nothing like the following would, I venture to think, be likely to occur under private practice conditions.

A slim married W.A.A.F., aged 22, paraded for routine medical examination on reposting. For reasons best known to herself the young woman M.O. told her, despite her protests, that she was pregnant, and deferred her one month. After five weeks the patient, having started a normal period, paraded again. A fresh woman M.O. looked at her card and, despite further protest, sent her to bed for two weeks in hospital as a "threatened abortion." In due course the patient was discharged from the Service (with all the extra coupons, etc.) as pregnant. After a further menstrual period she came to me, at an alleged 3½ months, utterly mystified, with no signs or symptoms of pregnancy and a negative Z/A!—I am, etc.,

M.B., B.CH.

### Spanish Medicine

SIR,—Prof. Dillon in writing of misunderstandings of Spanish medicine (July 15, p. 96) has left some misunderstandings. He writes: ". . . the clear truth is that medical advances are quite independent of political or ecclesiastical regimes. They depend largely on the wealth and education of the country concerned. Spain is poor and her people have had few opportunities of secondary and university education, because she has been ruled for 100 years by an oligarchy of more or less corrupt politicians." Perhaps, therefore, he will tell us at which period in her history Spain showed any eminence in medicine or science and what were the reasons for that eminence. The names of Spaniards who made important contributions to medicine or science would also be helpful to the historian.

It should be remembered that for many centuries Spain was a very rich country and for long the richest in the world, and that her educational institutions were particularly numerous and well endowed. There are, or were, no fewer than thirteen ancient universities in the peninsula without counting post-Renaissance foundations.—I am, etc.,

The Athenæum, London, S.W.1. CHARLES SINGER.

# The Services

Acting Surg. Cmdr. E. G. Brewis, and Surg. Lieut.-Cmdrs. A. S. Pearson and D. M. Dean, R.N.V.R., have been awarded the R.N.V.R. Officers' Decoration.

Temp. Surg. Lieuts. H. P. Lesselbaum and R. R. Wethered, R.N.V.R., have been mentioned in dispatches for good services in saving lives and valuable material in a heavy air raid on Bari.

## CASUALTIES IN THE MEDICAL SERVICES

Surg. Lieut. Myles Clayton Cross, R.N.V.R., who was posted missing, presumed killed, at the end of last year, was educated at Lancing, at Trinity College, Cambridge, and at Guy's Hospital. He qualified M.R.C.S., L.R.C.P. in 1941 and completed his M.B., B.Ch. in 1942; he held house appointments at Guy's and later in the Emergency Medical Service. In September, 1942, he was accepted for the R.N.V.R. and saw service in the North Africa landings, and at Pantellaria, Sicily, and Salerno.

*Wounded.*—War Subs. Capts. B. E. Camus and J. P. Turney, R.A.M.C.

*Missing, now presumed killed in action at sea.*—Major R. Edwards, R.A.M.C.

*Killed as the result of an accident.*—Col. W. J. S. Ingram, M.C., I.M.S.

*Died of wounds.*—War Subs. Capt. C. W. Hamilton, R.A.M.C.

## DEATHS IN THE SERVICES

Lieut.-Col. HERBERT HENRY GEORGE KNAPP, M.D., D.T.M.&H., I.M.S. (ret.), died on July 3 at Bournemouth in his 75th year. He was educated at Oxford and at St. Mary's Hospital, obtained honours in the Oxford B.A., took the B.M., Ch.B. in 1896 and the D.M. in 1899. He passed the D.T.M.Lond. and the D.T.M.&H.Camb. in 1913. He first served in South Africa from 1897 to 1901 as plague medical officer and as civil surgeon R.A.M.C. In 1902 he entered the I.M.S. and rose steadily to reach the rank of lieut.-col. in 1921. He was awarded the Queen's medal with four clasps for his active service in South Africa in 1900-1. He entered the civil department in the Bombay Presidency, served in the Jail Department, and was later promoted to be Inspector-General of Prisons in Burma. Among other interests he became a Fellow of the Royal Anthropological Institute.

Lieut.-Col. GEORGE EDWARD STEWART, M.B., C.M., F.R.C.S.Ed., I.M.S. (ret.), died on Nov. 29, 1943, in Jersey, aged 70. He was born at Hamilton, Ontario, in 1873 and was educated at Victoria College, Jersey, and at Edinburgh University, where he qualified in 1898 with the M.B., C.M. He subsequently took the F.R.C.S.Ed. and the D.T.M. of Liverpool in 1908. He entered the I.M.S. in 1898 and rose to be lieut.-col. on the selected list by 1923, but had to retire under the age rules before attaining the administrative grade. He saw active service in 1900 in China, in 1901 in Mekran, in 1908–10 in Somaliland, and gained medals for each campaign. He served throughout the war of 1914–18 in Waziristan and Mesopotamia, and was mentioned in dispatches. After his retirement he went to live once more in Jersey, and enemy action was doubtless the cause of the delay in the news of his death reaching this country.

# Obituary

## SIR WILLIAM LISTER, K.C.M.G., K.C.V.O., M.D., F.R.C.S.

Sir William Lister, Consulting Surgeon Oculist to the King since 1926, who died at his home in High Wycombe, Buckinghamshire, on July 7, had been a leading figure among the ophthalmologists of London. He taught a long succession of students at Moorfields Eye Hospital and the London Hospital, and did notable work during the last war as consultant to the British Expeditionary Force.

William Tindall Lister was born on Nov. 4, 1868, the youngest son of Arthur Lister, F.R.S., botanist and authority on the mycetozoa, and was a nephew of the great Lord Lister. Like his brother, J. J. Lister, F.R.S., zoologist and Fellow of St. John's College, who died in 1927, William Lister went to Cambridge University, graduating B.A. from Trinity College in the Natural Sciences Tripos of 1889. After his clinical course in London at University College Hospital he obtained the M.B., B.Ch. degrees at Cambridge in 1892 and the F.R.C.S. diploma in 1895; he proceeded M.A. and M.D. in 1922. Diseases of the eye attracted him from the time when he held resident house appointments, and it was not long before his judgment and operative skill became recognized by election to the posts of assistant surgeon to the Central London Ophthalmic Hospital and ophthalmic surgeon to the Hospital for Sick Children. After a period as curator of the pathological museum at Moorfields he was elected to the visiting staff there. When war broke out in 1914 Lister had been ophthalmic surgeon to the London Hospital for some time; he was then invited to take charge of the ophthalmic arrangements for the Expeditionary Force in France, and worked and planned there until 1918 with the rank of colonel, A.M.S. In 1918 he gave a Hunterian Lecture before the Royal College of Surgeons, recording some of his large war experience of injuries of the eyes by gunshot fire and mustard gas. He continued his interest in the welfare of officers and men as ophthalmic consultant to Queen Alexandra's Military Hospital after the war. He was created C.M.G. in 1916 and K.C.M.G. in 1919 for his work during the last war, and K.C.V.O. in 1934 in recognition of his services to the King and the Royal Household.

[*Press Portrait Bureau*

Mr. CHARLES GOULDEN has written an appreciation from which he allows us to quote:

I first met Sir William Lister in July, 1904, when I became a junior clinical assistant to Mr. William Lang at Moorfields. Lister had the desk, in the out-patient department, next to Lang's. He was always very friendly and found time to explain anything I might ask him. This was the more generous as he had little assistance and he found a large clinic somewhat bewildering. He was not a rapid worker and he set himself such a high standard that by the end of the morning's work he was exhausted. He had been elected an assistant surgeon in 1904, but in 1905 he found the work too much for him and, being by no means robust, he resigned. He had been elected ophthalmic surgeon to the London Hospital in 1903, so it was not surprising that he found he could not run two large clinics. These and two teaching schools were more than he could manage. It was a great pity he had to retire from Moorfields at the time that the school was undergoing development and rejuvenation, as he was a capital clinical teacher. Before his election to the staff he had served for five years as the pathologist and curator of the museum, and he had cultivated a beautiful technique in the cutting of sections and the mounting of specimens. He was a highly expert photographer and his photomicrography was of the highest order.

In 1914 he undertook the arduous task of organizing the ophthalmic service of the British Armies in France. By his persistence he ultimately overcame all difficulties and set up a most successful organization whereby not only was there an ophthalmic consultant available for each Army but surgical aid was obtainable at certain casualty clearing stations. The ophthalmic work was centralized at each base so that cases were admitted to one hospital where a group of surgeons worked. At each of these hospitals there was an out-patient department for the treatment of minor complaints, and there was also a complete spectacle service whereby a man might have his spectacles ordered and supplied in perhaps half an hour. This was a great triumph, and it was achieved in the face of much opposition. Lister in conjunction with the late J. F. Cunningham acted as a roving consultant, visiting all the bases and forward areas regularly as well as being on call when a second opinion or other aid was needed.

In 1918 Sir William resigned from the London Hospital so that he might give more time to postgraduate teaching, and in 1919 he was re-elected to the staff at Moorfields and entered with his customary enthusiasm on the work for which he had great talent—the training of postgraduates in ophthalmology by clinical teaching in the out-patient department. He also did his share in the giving of lectures. He was able to make use of his extensive collection of specimens, drawings, and photographs, many of which he had been too shy to publish. By his generosity a small clinical theatre was built at Moorfields, in which a case of special interest appearing in the clinic might be demonstrated. He made many other gifts to Moorfields.

Lister excelled in all branches of ophthalmology. He had had a prolonged training in clinical work, and a long period as a pathologist. He was a good operator, although apt to be very conservative. His opinion was frequently sought by his colleagues, and mention must be made of his efforts to improve instruments in common use by the ophthalmic surgeon. Lister was a lovable man and full of fun; he had great charm of manner and was a delightful host. He had a great sense of duty, and, having considerable wealth, looked upon it as a trust whereby he might assist the less fortunate. Many have reason to remember his kindness and generosity.

## JOHN PATRICK, F.R.C.S.ED., F.R.F.P.S.GLAS.

The sudden passing of Mr. John Patrick, for many years a consulting surgeon in Glasgow, came as a shock to many. His immediate friends had noticed evidences of failing health over the past year or more in one who was formerly virile and full of energy. This culminated a few months ago in a prolonged residence in a nursing home because of a condition of heart-block. He so far recovered as to be able to move about slowly and later to proceed for a short holiday to Arran, where he had for so many years spent his various periods of relaxation from work. Though far from well on his return he elected to keep going about, and to resume some of his lighter duties. His sudden fatal seizure brought to an end a very useful and busy life, in which he never spared himself in helping others in their time of trouble. He leaves behind him a splendid record of work well done, and will be much missed by his many friends in this neighbourhood and elsewhere.

His father, Dr. William Patrick, was a well-known and highly respected practitioner with a busy practice in an industrial part of Glasgow. John was born in the Bridgeton area, and was educated at the Glasgow High School, from which he proceeded to Glasgow University. He graduated M.A. there in 1889, and M.B., C.M. in 1893. After a period of residence in the Royal Infirmary with the late Sir David C. McVail he spent a year as resident surgeon in the wards of the late Sir William Macewen in the Western Infirmary. Here he gained the grounding in aseptic surgery and the wide clinical experience on which his after-life was based. Later he was outdoor house-physician at the Glasgow Maternity Hospital, from which he proceeded to Vienna for further surgical study before joining his father in his extensive

practice. He early was appointed to the visiting staff of the Royal Infirmary, passing in due course through the various stages to the post of assistant surgeon. By this time he had qualified for, and obtained, the Fellowship of the Royal College of Surgeons of Edinburgh (1908) and the Fellowship of the Royal Faculty of Physicians and Surgeons of Glasgow (1909). The war came and he was attached to the 4th Scottish General Hospital as a surgeon, proceeding over-seas in 1916 to Salonika as a surgical specialist with the 38th General Hospital. He remained there till the end of hostilities, latterly serving as consulting surgeon with the rank of lieut.-colonel, and was awarded the Grecian Order of Military Merit for his services.

Shortly after his return to Glasgow he was promoted and became visiting surgeon to the Royal Infirmary, where his good work and his value as a teacher were soon recognized by the students. Patrick had the gifts of facile speech and lucid illustration, which soon gained for him large and enthusiastic classes. Here he gloried in his work till his period of service came to an end, and he was appointed to the honorary consulting staff. During his service as visiting surgeon he held the post of lecturer-examiner in clinical surgery in Glasgow University, and also an examinership in surgery for the licence of the Scottish triple qualification.

He was an enthusiastic member of the Association of Surgeons of Great Britain and Ireland, regularly attending meetings all over this country and abroad, and so enlarging and enhancing his experience by comparing notes with surgeons from all quarters. He had a ready pen as well as speech, and made good use of this gift in many contributions to the surgical literature of his time. For many years also he acted as surgical editor of the *Glasgow Medical Journal* with great acceptance, his literary knowledge and thoroughness specially fitting him for work of this kind. He was always an enthusiastic member of the British Medical Association, being at one time a member of the Scottish Committee and of its Central Council. His literary capacity was recognized by that body, who utilized his services as a local correspondent for this area for many years. The emergencies of the present war brought him into harness again, and he resumed his surgical editorship of the *Glasgow Medical Journal*, as well as resuming his work as a clinical teacher one or two days weekly till his health broke down. He thoroughly enjoyed being back among the students again.

Outside of his medical work Patrick was interested in the arts and especially in music, from which he derived great enjoyment and relaxation. Right up to the end he kept up his interest in games and sport generally. Throughout a busy life he kept himself fit by his habit, whenever possible, of having his regular round of golf with his friends on a Saturday, his favourite resort being the old course at Troon. He is survived by his widow, one daughter, and four sons—three of whom are on service over-seas, two of them being with the R.A.M.C.—to all of whom we extend our deep sympathy in their sudden great bereavement.

J. H.

## WILFRED J. HADLEY, M.D., F.R.C.P.

Dr. Wilfred Hadley, who died in retirement at his home in Reigate on July 6 aged 82, was a consulting physician of the old school, and for many years served on the visiting staffs of the London Hospital and the Victoria Park Chest Hospital. He had a high reputation as a teacher at the bedside, with a remarkable gift for perceiving and demonstrating in clear language the essential features of a case.

Wilfred James Hadley was born at Gloucester on March 28, 1862, and after schooldays at Taunton went to study medicine, first in London and then at Newcastle-upon-Tyne, graduating M.B. of the University of Durham with first place in the honours list in 1886, and M.D. (with gold medal) in 1893. His clinical apprenticeship was partly at the London Hospital, and after graduation he went to Göttingen University for a time. He held a succession of house appointments at the London Hospital after qualifying in 1883, and then became pathologist and lecturer on medical bacteriology and curator of the museum there; he began his long connexion with the Victoria Park Hospital as pathologist. Dr. Hadley obtained the F.R.C.S. in 1887, the M.R.C.P. in 1890, and was elected a Fellow of the Royal College of Physicians in 1899, representing the College as examiner in medicine for the English Conjoint Board in 1908–12. He was part author with Sir Andrew Clark and Dr. Arnold Chaplin of a book on *Fibroid Diseases of the Lung*, which ranked high in medical literature, and of a small book, *Nursing: General Medical and Surgical*, which was published in 1901 and reached a second edition in 1907; he also wrote on diseases of the respiratory system for the *Medical Annual*, and contributed a few papers to medical and scientific journals. During the last war he served with the rank of captain, R.A.M.C.(T.), and was physician to the Endsleigh Palace and Palace Green Hospitals for Officers. On retirement from the full staff of the London Hospital and the Victoria Park Hospital he was elected consulting physician to each. His daughter, Dr. Margaret Hadley Jackson, who held a number of house posts at "The London," is in practice at Crediton in partnership with Dr. H. F. L. Hugo and her husband, Dr. L. N. Jackson.

## T. W. WADSWORTH, M.D., F.R.C.P.

Tom Watson Wadsworth, who died on June 23, left behind, in his native city, a fine record of work faithfully performed. From his undergraduate days his ambition was to be a consultant physician, and four years' service during the first great war hardly interrupted his studies, for he became a member of the Royal College of Physicians while in the R.A.M.C. In 1919 he was elected to the honorary staff of the Liverpool Stanley Hospital and later to the Hospital for Diseases of the Chest and the Providence Hospital, St. Helens. In 1920 he was appointed visiting physician to Walton Hospital, and in this position he did pioneer work, as he was given charge of beds and was probably the first to work under these conditions in a Poor Law hospital. For many years he personally examined every medical case admitted. He was a most careful worker, seldom making a spot diagnosis, but preferring to reach his conclusions after a complete routine examination. Honesty was one of his characteristics; whatever he undertook to do was scrupulously carried out. He did not set an extravagant value on his services, and he always took particular care to give full value for fees paid to him. He could not bear to accept from a patient more than he could afford to pay.

He was an active member of the B.M.A. He had been chairman of the Liverpool Division and had represented it at the Annual Representative Meeting for many years. He regarded himself as a typical Englishman and he took great pride in making his conduct conform to this ideal. This was associated with a dislike of ostentation or display of any kind that amounted to a fault. The place he held in the esteem of the local profession was indicated by the number of doctors or members of their families who were among his patients. An interest in physiology aroused during his student days remained with him throughout life, and for many years he lectured on applied physiology in the University of Liverpool. Outside his profession his chief interests were in the history of science and in various forms of handicraft. He had hoped for a period of retirement when he would be able to indulge his tastes, but he felt it his duty to contribute to the war effort, and he continued to attend some of his hospitals after his retirement from private practice. Towards the end he came to realize that if his life was to be prolonged he would have to limit his activities very strictly. This would have been intolerable to one of his active temperament, and he refused to alter his way of living. His marriage was a particularly happy one, and much sympathy is felt for his widow. In Walton, the hospital to which he devoted so much of the work of his life, he is remembered with affection.

H. H. M.

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The death is announced of Dr. EDWARD FERDINAND PAGE, who practised at Solihull, Warwickshire, for many years, and joined the British Medical Association in 1890 immediately after qualifying as L.S.A. He took the M.R.C.S., L.R.C.P. diplomas in 1899 and the M.B., B.Ch. degrees of Birmingham University in 1901, and he held many public appointments in succession to his father. G. C. B. writes: In the passing of Dr. Ferdinand Page we lose a beloved colleague, a man of the old school, who throughout his life carried on the arduous duties of a country practitioner. Only those who do this work know its hardship, but he never grumbled nor thought of the humdrum work that falls to the lot of a country doctor. The daily routine of his practice was, however, leavened by an occasional follow-up of the hounds (a sport he loved), and what little leisure he had was taken up by handicraftsmanship. He was a friend of the late Jordan Lloyd when tuberculous joints were fixed up in elaborate splints, and Page, being the artist in woodwork, perfected these splints for him. Page was a man of sound judgment and his knowledge of psychological

medicine was reliable. Death has robbed North Warwickshire of one who was devoted to our profession and keenly interested in modern developments.

Dr. THEODORE ESSEX ROBERTS, whose untimely death from coronary thrombosis took place on June 19, was born at Fowey in 1886. Educated at Elizabeth College, Guernsey, and at Monkton Combe, he studied medicine at Guy's Hospital, qualifying in 1913. Thereafter he held appointments at the Evelina Hospital for Children, at Croydon General Hospital, and at Winchester Hospital. He served as a captain in the R.A.M.C. throughout the first world war. After practising at Barrow, where he held an appointment at the local hospital for five years, he settled at Putney, where he remained until his death. He was anaesthetist at Putney Hospital for many years. Apart from his professional attainments, Dr. Roberts was learned in the classics, and no mean authority on Roman history. He was generally acknowledged among a wide circle of colleagues, patients, and friends to be a sound and trustworthy doctor, a kind and sympathetic friend, and in all things a gentleman. His departure leaves a void in many hearts which will not easily be filled, for none who have felt his kindly influence will forget him or cease to be thankful for his life of unselfish service.—J. T. H.

# Universities and Colleges

## UNIVERSITY OF BIRMINGHAM

In succession to the late Sir Harold Beckwith Whitehouse, Mrs. Bertram Lloyd, M.B., Ch.B., F.R.C.S., has been appointed to the chair of midwifery and gynaecology. She was the first woman to be elected to a professorship in the Faculty of Medicine at Birmingham University. Mrs. Lloyd (*née* Hilda Shufflebotham) was educated at Birmingham University. She is a consulting surgeon at the Birmingham and Midland Hospital for Women (Sparkhill) and at the Birmingham Maternity Hospital (Loveday Street). For some years she has been a lecturer in obstetrics and gynaecology in the university.

## UNIVERSITY OF EDINBURGH

A graduation ceremony was held on July 12, when the following degrees and diplomas were conferred:

LL.D.—W. T. Ritchie, O.B.E., M.D., F.R.C.P.Ed.

M.D.—Squad. Ldrs. N. S. Alcock and J. A. Chalmers, R.A.F.V.R., R. D. Gray, and [1]J. W. Morgenthal.

M.B., Ch.B.—R. Allan, Joyce M. Allen, J. O. S. Anderson, P. E. Anderson, N. M. Antonio, C. B. Black, M. F. Buchanan, Jessie F. Burns, J. S. Calder, R. J. Cameron, J. C. Campbell, Joan M. Cannon, R. D. T. Cape, Jean Cockburn, D. G. Conacher, Anne M. Cookes, Lesley M. Copland, J. W. Cowie, J. U. Crichton, R. P. A. Cumming, V. W. DeLorey, R. M. d'Offay, W. H. Donald, C. P. Douglas, Mary A. J. T. Douglas, J. W. Duff, J. A. Eadie, Elisabeth A. Ede, Audrey L. Ferguson, E. J. Fleischer-Djoleto, G. A. Fraser, T. M. Fraser, W. Y. Galloway, J. M. Gardiner, [2]J. W. Gibb, D. K. Gilchrist, Eleanor Ginsburg, A. J. H. Grant, Mary E. Guest, M. W. Macd. Hadley, C. E. L. Haffner, Lindsay D. C. Halliday, Margaret C. Halstead (*née* Wardill), G. N. Hamilton, C. A. Haxton, E. V. Henton, B. S. Hutchison, A. M. Kassim, D. T. Kay, Marjory A. Keith, D. R. Kerr, T. W. G. Kinnear, D. W. Lamb, I. S. Lechler, J. A. Leitch, J. R. Lester, W. J. H. Lord, A. D. M'Intosh, [2]Sheila M. M'Intosh, Runa B. Mackay, A. MacKellar, A. R. MacKinnon, I. H. Maclardy, G. H. D. M'Naught, Margaret G. Martin, Margaret D. Miller, H. C. Milligan, Margaret J. F. Mills, Mona Mitchell, A. Mories, Rhoda M. Murray, G. W. Mutch, Alexina M. H. Myles, R. C. Nimmo-Smith, T. Noble, Ann-Mary O'Hanlon, R. E. O'Neal, R. N. Onyemelukwe, Mary N. Peggie, H. D. W. Powell, R. S. Powell, K. S. Preston, S. Rae, A. P. G. G. Ratipal-Singh, P. A. Riddles, R. T. Ritchie, Alice E. Robson (*née* Livingstone), C. F. Rolland, J. D. Sammon, A. Scott, J. H. S. Scott, I. M'G. R. Scroggie, Frances Sorrell, Felicity F. Soutter, H. W. Stark, Agnes W. C. Storrar, H. T. Swan, R. W. Thomson, Dorothy M. Toop (*née* Walker), F. W. A. Turnbull, Brenda C. Vale, P. G. Walker, J. F. C. Waterston, George S. Watson, J. M. Whaites, John S. Wilson, I. W. Winchester, J. H. Wrigley, Florence H. Young.

D.M.R.—J. A. Mackod.

[1]Commended for thesis. [2]With honours.

The following prizes were presented:

*Cameron Prize in Practical Therapeutics*: Prof. O. Loewi. *Ettles Scholarship and Leslie Medal*: C. A. Barrett. *Scottish Association for Medical Education of Women Prize, and Dorothy Gilfillan Memorial Prize*: Sheila M. M'Intosh. *Mouat Scholarship in the Practice in Physic*: T. G. Crombie. *Buchanan Scholarship in Midwifery and Gynaecology*: I. M. Richardson. *James Scott Scholarship in Midwifery and Gynaecology*: C. F. Rolland. *Conan Doyle Prize*: T. W. G. Kinnear. *Keith Memorial Prize in Systematic Surgery, and Murdoch Brown Medal in Clinical Medicine*: G. J. Romanes. *Beaney Prize in Anatomy and Surgery*: R. J. M. M'Cormack and P. R. Walbaum (equal). *Royal Victoria Hospital Tuberculosis Trust Medal*: J. A. Leitch. *Annandale Medal in Clinical Surgery*: J. W. Gibb. *Wightman Prize in Clinical Medicine, and Stark Scholarship in Clincal Medicine*: Marjory A. Keith. *Ellis Prize in Physiology*: R. H. N. Smith. *Gunning Victoria Jubilee Prize in Chemistry*: I. D. E. Storey. *Colonel Thomas Biggam Memorial Medal and Prize in Pathology*: J. A. Loraine. *Maclagan Prize in Forensic Medicine*: R. F. Robertson. *Cunningham Memorial Medal and Prize in Anatomy*: P. N. Edmunds and Eileen V. M'William (equal). *Whiteside Bruce Bursary*: Rosemary H. M. Davie. *Vans Dunlop Prize in Botany and Zoology*: G. W. Hickish and C. W. M. Wilson (equal).

Degrees were also conferred by the Polish School of Medicine at Edinburgh.

## UNIVERSITY OF GLASGOW

At a graduation ceremony on July 12 the following medical degrees were conferred:

M.D.—[1]A. W. Kay, [2]A. Wilson, J. S. G. Burnett, N. C. Gellatly, [1 4]N. G. B. McLetchie, [3 4]C. M. Kesson.

M.B., Ch.B.—[3]J. K. Watt, [3]S. C. Frazer, [3]I. A. McGregor, [3]F. Finlayson, [3]C. M. Ross, [3]A. S. Douglas, [3]I. A. Short, [3]J. A. Simpson, [3]A. R. Currie, H. Cameron, [3]J. B. Stevenson, [3]J. G. Robson, [3]R. Love, [3]P. S. Macfarlane, [3]Jean M. Neville, Mary W. Alves, J. C. Anderson, D. Barclay, T. C. Barras, Aileen V. Barrett, Maura E. Barrett, J. R. H. Berrie, J. A. Blackwood, J. E. Brodie, Elizabeth C. Brownlie, Jean L. Buchanan, W. O. R. Caldwell, E. W. Cameron, H. McC. Carson, T. Cartmill, J. B. Cochran, B. C. Conochie, G. A. B. Cowan, T. N. Cowie, J. B. Crook, J. Crorie, A. Cross, H. B. Crum, J. McL. Culver, W. R. Cunningham, G. Currie, R. Cuthbert, S. Dalziel, R. Deans, J. Dick, Mary B. Donald, D. Drew, Margot G. Dunlop, W. S. Dykes, C. E. Gabriel, Mary D. Gardner, D. C. R. Gemmell, A. M. Gordon, J. G. Goudie, Elizabeth M. Graham, Janet F. Graham, H. D. Gready, Lilian Green, Eleanora J. Haddow, Mary A. Harvie, Jean N. Henderson, F. R. Hood, A. Isaacs, D. C. Jackson, Ruby McL. Jackson, C. O. Kennedy, Martha G. Kennedy, Jean M. Leckie, G. M. Ligertwood, Maud I. Lindsay, G. B. Logan, H. J. Love, Jemima W. Love, G. M. A. Lynch, J. McCarlie, R. A. McCluskie, P. McCusker, Katherine A. McDonald, G. M. McEwan, I. MacGillivray, I. McHattie, H. MacC. MacIntyre, A. I. MacKenzie, A. D. MacNeill, I. W. MacPhee, D. MacRae, Margaret D. C. Martin, J. Millar, W. G. Millar, J. A. Milne, A. L. Morton, D. Muller, A. R. Murison, W. Nicol, H. Norwell, M. L. Paterson, James Pearson, J. S. Pollock, H. C. Reid, J. R. Reid, W. McK. Reid, A. MacD. Revie, G. B. S. Roberts, G. A. H. Sandelands, A. B. Sclare, J. M. Scott, W. N. Shand, James Simpson, D. M. Sinclair, Ann K. Smith, J. F. F. Smith, John Maclean Smith, Margaret Y. Smith, Marion C. Smith, William A. M. Smith, A. E. T. Sneeden, J. L. Steven, J. A. P. Stewart, R. A. Y. Stewart, L. Strang, J. W. Sutherland, D. M. Thomson, W. R. Thomson, C. M. Turner, J. Vaughn, J. A. A. Verrico, Martha H. Watson, W. E. Watson, D. S. Watt, T. M. Welsh, Elizabeth J. Whiteford, R. Whitelaw, Jessie E. Wilson, Thomas S. Wilson, H. Y. Wishart, D. C. Wright, K. C. Wyllie, H. K. L. Young.

[1]With honours. [2]With high commendation. [3]With commendation. [4]*In absentia.*

## UNIVERSITY OF WALES

### THE WELSH NATIONAL SCHOOL OF MEDICINE

The following candidates have satisfied the examiners at the examination indicated:

M.B., B.Ch.—*Obstetrics and Gynaecology*: D. Anthony, M. L. Edwards, J. H. Edworthy, Hannah P. Evans, Joan Guy, J. C. Ham, Jane W. James, D. R. Lewis, Barbara D. S. Marshall, Margaret Owen, D. B. Price, Olwen V. Rees, D. V. Thomas, Glenys M. Thomas, D. Tooms, W. O. Williams.

## ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At a meeting of the President and Fellows of the College, held on July 7, Lieut.-Col. J. K. McCollum, R.A.M.C., was admitted a Fellow, and P. J. Cowley was admitted a Member and Licentiate.

# Medical Notes in Parliament

### White Paper on Family Allowances

On July 11 Mr. CHURCHILL informed Mr. Tinker that the Government had completed the preparation of the White Paper embodying their proposals generally for a system of family allowances and for replacing the existing system of workmen's compensation by a new scheme. It was the Government's present intention to publish the White Paper in time for it to be discussed when Parliament reassembled after the recess. Mr. TINKER: Is there any reference in the White Paper to old age pensions, which was an important issue? Mr. CHURCHILL: Certainly. It is a gigantic scheme.

### Minister's Discussions with B.M.A.

On July 13 Dr. HOWITT asked the Minister of Health what progress he had made in his discussions with the medical profession on the proposals for a National Health Service.

Mr. WILLINK replied that preliminary discussions took place before the issue of the White Paper, on a non-committal and confidential basis. Since the White Paper he had received and answered a number of questions of detail from the profession's representatives. The answers to these had been published. He had hoped to begin more definite discussions with the profession after the Representative Meeting of the B.M.A., which was intended to be held this July, but, for reasons not due in any way to the profession, this meeting had been postponed. He appreciated that these discussions must be deferred. Mr. Willink added that he had studied with interest the draft statement of policy recently issued by the Council of the B.M.A. There were many detailed points in it on which he should welcome some elucidation. In particular he would be glad to have further explanation of the Council's views upon the proposed administrative and consultative machinery, both central and local. He was therefore inviting the Council to send representatives to discuss these and other points with him and his officers in order that the ground might be cleared for the general discussions which would be opened when the Representative Meeting had been held.

*Air Transport and Convection of Disease.*—Mr. WILLINK said on July 13 that he was unaware that air transport at present caused diffusion of disease. The risk that infectious disease could be thus conveyed from one country to another was recognized and was the subject of an international sanitary convention regarding aerial navigation, which provided for safeguards. Every precaution was being taken against the incursion of epidemic disease into this country by this means.

*Medical Examination of Irish Workers.*—Mr. PETHERICK inquired on July 12 whether men and women coming from Eire to England, Scotland, or Wales to work were medically examined at the ports on arrival. Miss HORSBRUGH said they were not, except that such examinations had been temporarily carried out on one or two occasions when a special risk of the possible importation of major infectious disease had appeared.

## EPIDEMIOLOGICAL NOTES

### Discussion of Table

In *England and Wales* during the week the incidence of infectious diseases fell, the only exception being a rise of 106 in the notifications of acute pneumonia. Dysentery had 66 fewer notifications than last week, diphtheria 55, whooping-cough 42, and measles 35.

There was a slight fall in the notifications of diphtheria in most areas, and no large fluctuations were recorded. Cheshire reported 57 fewer cases of whooping-cough than last week, Surrey 57, and London 55. The largest falls in measles were Northumberland with 75 fewer cases, and Southampton with 44 fewer, but in Lancashire the total went up by 79.

The notifications of dysentery dropped from 201 to 135, the lowest weekly total recorded this year. The largest returns were those of Surrey 22, Yorks West Riding, 13, Lancashire 12, Glamorganshire 12, London 11, Sussex 11.

In *Scotland* 115 fewer cases of measles were reported. The notifications of this disease have fallen by two-thirds during the past month.

In *Eire* there was a rise of almost 100% in the notifications of measles, owing to the outbreak in Clare, Ennis U.D., where 102 cases were reported during the week.

*Diphtheria*

There was a small general fall in the incidence of diphtheria in England and Wales during the week. The disease has been at a relatively very low level for the past six weeks, and the 432 notifications are the lowest ever recorded. The incidence is higher in the north than elsewhere; during the week reviewed the two counties of Lancashire and Yorks West Riding had 67 and 70 of the total notifications. It appears that the campaign for immunization has now successfully lowered the incidence of this disease. Although there could still be a great improvement, a comparison of the notifications in the first two quarters of the year is:

| Weeks | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1944 as % of Average of 1937–41 |
|---|---|---|---|---|---|---|---|---|---|
| 1–13 | 14,973 | 20,941 | 14,859 | 9,199 | 14,533 | 11,658 | 10,799 | 9,005 | 60 |
| 14–26 | 12,473 | 13,245 | 10,167 | 9,022 | 11,614 | 8,911 | 8,355 | 6,973 | 62 |

The fatality rate has also fallen. The deaths per 1,000 notifications in the great towns during the first twenty-six weeks of 1944 were only 30, compared with 58, 45, and 42 for the first six months of 1941–3. The diagnostic error has increased during the past years, judged from some London hospitals' experience. This increase may account for a part of the reduced mortality, but it would also mean that the reduction in incidence is greater than indicated above.

### Notification of Measles and Whooping-cough in Scotland

It has been pointed out by a reader that measles and whooping-cough are not notifiable diseases in Scotland. The returns for these diseases issued by the Department of Health for Scotland, and printed each week in our epidemiological table, are based on: (*a*) admissions to hospital; (*b*) reports of absenteeism from school teachers and attendance officers; (*c*) information from health visitors, medical officers of the child welfare department; (*d*) information from sanitary inspectors; and (*e*) intimations from children's homes, etc. The figures are, therefore, an index of the general incidence but cannot be taken as statistically accurate, and are probably, in general, as underestimate.

### Week Ending July 8

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,390, whooping-cough 2,325, diphtheria 425, measles 2,571, acute pneumonia 539, cerebrospinal fever 45, dysentery 132, paratyphoid 8, typhoid 3.

No. 26

## INFECTIOUS DISEASES AND VITAL STATISTICS

**We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 1.**

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

*Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for:* (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

| Disease | 1944 (a) | (b) | (c) | (d) | (e) | 1943 (Corresponding Week) (a) | (b) | (c) | (d) | (e) |
|---|---|---|---|---|---|---|---|---|---|---|
| Cerebrospinal fever | 44 | 3 | 25 | 2 | 2 | 49 | 2 | 30 | 3 | 5 |
| Deaths | | — | — | | | | — | 1 | | |
| Diphtheria | 432 | 21 | 136 | 54 | 20 | 608 | 36 | 163 | 65 | 21 |
| Deaths | 8 | — | — | 1 | — | 10 | 1 | — | 4 | 1 |
| Dysentery | 135 | 11 | 95 | 1 | — | 120 | 20 | 64 | — | — |
| Deaths | | | | — | — | | | | — | — |
| Encephalitis lethargica, acute | 1 | — | — | 1 | — | 5 | — | — | — | — |
| Deaths | | — | | | | | — | | | |
| Erysipelas | | | 36 | 8 | 1 | | | 37 | 4 | 1 |
| Deaths | | — | | | | | — | | | |
| Infective enteritis or diarrhoea under 2 years | | | | 19 | | | | | 44 | |
| Deaths | 34 | 7 | 6 | 3 | 1 | 31 | 3 | 8 | 9 | 5 |
| Measles | 2,503 | 129 | 167 | 203 | 55 | 4,165 | 213 | 234 | 8 | 8 |
| Deaths | 2 | — | 2 | — | — | 1 | — | — | — | — |
| Ophthalmia neonatorum | 69 | 4 | 20 | — | — | 109 | 2 | 24 | 1 | — |
| Deaths | | | | | | | | | | |
| Paratyphoid fever | 2 | — | 3(B) | 2(B) | — | 10 | 3 | 1 | — | — |
| Deaths | — | — | — | — | — | — | — | — | — | — |
| Pneumonia, influenzal* | 558 | 29 | 5 | 4 | 1 | 530 | 27 | 7 | — | 10 |
| Deaths (from influenza) | 13 | — | 1 | — | — | 7 | — | 1 | — | — |
| Pneumonia, primary | | | 183 | 13 | | | | 194 | 12 | |
| Deaths | | 29 | | 13 | 9 | | 19 | | 5 | 10 |
| Polio-encephalitis, acute | — | — | | | | — | — | | | |
| Deaths | | — | | | | | — | | | |
| Poliomyelitis, acute | 6 | — | 7 | — | — | 5 | 1 | — | 5 | — |
| Deaths | | — | | | | | — | | | |
| Puerperal fever | | 1 | 8 | | | | 1 | 20 | | — |
| Deaths | | | | | | | | | | |
| Puerperal pyrexia† | 154 | 8 | 19 | — | 3 | 149 | 6 | 16 | 3 | 2 |
| Deaths | | — | | | | | — | | | |
| Relapsing fever | — | — | | | — | — | — | | | — |
| Deaths | | | | | | | | | | |
| Scarlet fever | 1,437 | 66 | 187 | 27 | 45 | 1,984 | 171 | 201 | 39 | 54 |
| Deaths | — | — | — | — | — | 1 | 1 | — | 1 | — |
| Smallpox | — | — | — | — | — | — | — | — | — | — |
| Deaths | | | | — | — | | | | — | — |
| Typhoid fever | 10 | — | 4 | 4 | 3 | 8 | — | 1 | 6 | 2 |
| Deaths | — | — | — | — | — | — | — | — | — | — |
| Typhus fever | — | — | — | — | — | — | — | — | — | — |
| Deaths | | | | — | — | | | | — | — |
| Whooping-cough | 2,382 | 178 | 110 | 60 | 11 | 2,249 | 100 | 133 | 42 | 38 |
| Deaths | 11 | 5 | 2 | — | — | 10 | — | 5 | — | 1 |
| Deaths (0–1 year) Infant mortality rate (per 1,000 live births) | 285 | 43 | 44 | 29 | 22 | 284 | 30 | 60 | 34 | 25 |
| Deaths (excluding still-births) | 4,660 | 1,105 | 497 | 186 | 124 | 3,742 | 508 | 580 | 175 | 120 |
| Annual death rate (per 1,000 persons living) | | | 11·4 | 12·1 | ‡ | | | 13·1 | 11·5 | ‡ |
| Live births | 7,248 | 821 | 939 | 418 | 300 | 6,563 | 793 | 934 | 478 | 323 |
| Annual rate per 1,000 persons living | | | 19·1 | — | ‡ | | | 19·1 | 31·4 | ‡ |
| Stillbirths | 212 | 22 | 31 | | | 190 | 16 | 33 | | |
| Rate per 1,000 total births (including stillborn) | | | 32 | | | | | 34 | | |

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

# Medical News

The attention of readers is drawn to the notice in our advertisement columns of vacancies for professors in the Departments of Pathology, Physiology, and Surgery in the Royal Faculty of Medicine, Baghdad, Iraq. Candidates should be available for appointment as from Oct. 1, 1944. The salary payable in Iraqi dinars is equivalent to £1,800 a year, in addition to which there would be a monthly cost-of-living allowance of £24. Candidates should have had at least eight years' teaching experience in a British university or other recognized medical school. Applications should be addressed to the British Council, 3, Hanover Street, London, W.1, and should include full particulars of past experience and appointments held, together with three copies each of three recent testimonials or the names of three referees.

A meeting of the Council of the Medical Superintendents' Society will be held at the Queen's Hotel, Birmingham, on Friday, July 28, at 2.30 p.m., and Saturday, July 29, at 10 a.m.

The Acting Editor of *Public Health*, the official organ of the Society of Medical Officers of Health, regrets that the July issue, and possibly subsequent ones, will be delayed, the printers having received severe damage from enemy action.

A reception was held at the Dorchester Hotel, London, on July 8 to mark the twentieth anniversary of the formation of the Society for Cultural Relations with the U.S.S.R. Since its inception this society has arranged for the interchange of information between the two countries and also for personal contact between many scientists, scholars, and artists. In 1934 it arranged for a number of doctors from Great Britain to attend the Conference of the International League against Rheumatism held in Moscow, and many doctors have toured the Soviet Union under its auspices.

The Ministry of Health's Memorandum V. 21 on the subject of tests which it is considered should be applied to V.D. patients before they are regarded as discharged after completion of treatment and observation has now been revised, and copies have been sent to medical officers of Venereal Diseases Treatment Centres. It is thought that the memorandum will also give helpful guidance to medical practitioners who have been appointed by local authorities under the provisions of Circular 2226 to examine and treat patients at their own surgeries, and to those recognized or designated as special practitioners for the purpose of Regulation 33B. Copies are in the hands of medical officers of health for distribution.

The U.S. Office of War Information in a circular dated June 13 mentions a new product from agricultural research laboratories in America. It is a type of cotton bandage fabric that tends to fit and cling better than ordinary gauze and allows greater freedom of movement in bandaged joints. Valuable properties of the new fabric are a high degree of "stretchability" which makes the bandage partly self-fitting so that it conforms to irregular surfaces. It also has enough elasticity to make it flexible and somewhat self-tightening without restricting the circulation of the blood, and a roughened surface which causes layers of bandage to cling together in contrast to the slipperiness of ordinary gauze. The bandage is made by chemically treating ordinary open-weave gauze.

The annual report for 1943 of the Director of Medical Services, Sierra Leone, appears in the abbreviated form which is now usual in the Colonial Medical Service. It shows the difficulties which obtain under war conditions and the endeavours to combat them with a depleted staff, with practically no reliefs. The Director of Medical Services and his officers are to be congratulated on the way they have met the now prolonged emergency. Naturally, large measures have to be postponed until the end of hostilities, and even so urgent a problem as the prevalence of malaria at Freetown and its effects on maritime services must be held up until a satisfactory long-term scheme can be evolved and carried out.

UNRRA's expert commissions on quarantine and on the health problems of displaced persons in Europe have drafted two conventions modifying the International Sanitary Convention, 1942, and the International Sanitary Convention for Aerial Navigation, 1933, and have drawn up minimum international health measures for application to displaced persons. The conventions provide: (1) that UNRRA shall carry out the duties and functions previously performed by the International Office of Public Health, Paris, without prejudice to the future status of that body; (2) that while the system of notification and communication of information referred to in the 1926 and 1933 conventions is to remain in force, Governments signing the new conventions will undertake to transmit such notifications and information to UNRRA together with information on diseases other than those mentioned in the conventions. To deal with this work Dr. Andrew Topping, Director of Health of UNRRA for the European region, has set up an Epidemiological Intelligence Bureau.

# Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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## ANY QUESTIONS?

### Tuberculous Peritonitis in Adults

**Q.**—*What are the present accepted ways of dealing with tuberculous peritonitis in an adult, and what is the prognosis?*

**A.**—No great advance in the treatment of tuberculous peritonitis has been made in the last few years. The patient should be kept in bed under favourable hygienic conditions. A diet with plenty of vitamins A, C, and D should be prescribed and the bowels kept open. Regular exposure to real or artificial sunlight should be given. *X*-ray exposures have been recommended, but the results are variable. In women the seat of the primary cause of the peritonitis is frequently found in the Fallopian tubes, and surgical removal of the focus is justified in some cases. In cases in which the abdomen has been opened in error for appendicitis it has been noted that improvement often takes place, and on the strength of this the use of therapeutic pneumoperitoneum has been advocated. Some good results have been reported, and in skilled hands the treatment is without danger.

### Bronchiectasis in a Child

**Q.**—*A boy aged 12 suffers from bronchiectasis with frequent haemoptysis. The fingers are much clubbed, and there is a history of bronchopneumonia at the age of 3, after measles. There is also a history of pleurisy. No tubercle bacilli have been found in the sputum. X rays show dense shadows in the region of the middle lobe of the right lung. Lipiodol examination has not yet been made. Is lobectomy a feasible treatment for bronchiectasis at this age? If not, what other line of treatment should be adopted?*

**A.**—In a suitable case lobectomy is undoubtedly the best treatment for bronchiectasis in a child, since the mortality from this operation under the age of 14 is negligible and the results are excellent. The operation can be undertaken only if the disease is localized, and this must be ascertained by careful bronchographic examination of both lungs. If the disease is found to be too extensive for operation, the best treatment will consist of postural drainage and breathing exercises. The investigation and treatment of such a patient may require considerable skill, and it is therefore best carried out at a chest hospital.

### Stilboestrol for Leukoplakia Vulvae

**Q.**—*Is there any danger of cancer following the administration of stilboestrol 5 mg. once daily in a woman of 68 who complains of pruritus vulvae with small patches of leukoplakia? After two months, menstruation (not only bleeding but mucous discharge, epithelial cells, etc.) began and fullness of the breasts was observed. The effect on the vulval condition was to cure it. On stopping the stilboestrol for three months the condition (soreness and irritation of the vulva) returned, more mildly than before. Is there any objection to her resuming the treatment?*

**A.**—The answer to the first part of the question is that there is always a danger of cancer following leukoplakia of the vulva. It is also known that most oestrogenic substances, including stilboestrol, are mildly carcinogenic. Carcinoma due to the known carcinogenic substances occurs in man only after a long period of exposure—e.g., many years in tar epithelioma. Whether the combination of a precancerous condition, such as leukoplakia, with the administration of a carcinogenic substance, such as stilboestrol, might precipitate the onset of carcinoma is difficult to determine, and if a carcinoma arose in such circumstances it would be hard to know if it was actually caused by the administration of stilboestrol. Since in the case mentioned in the question the condition has been temporarily cured by stilboestrol, I can see no objection to giving another short course—say, three months—keeping the patient under careful observation and warning her that the subjective symptoms, such as menstruation, may be expected to recur. I should recommend the

use of smaller doses, at any rate at first; 2 mg. a day is often sufficient to control the symptoms. It is believed that this condition may be partly due to a deficiency of vitamin A, and it has also been found that many of these patients have achlorhydria. Dilute hydrochloric acid with meals and vitamin A in large doses may help. I assume that glycosuria and trichomonas vaginitis have both been excluded.

### Stubborn Asthma

*Q.—A woman patient with asthma does not react to either injections of adrenaline or ephedrine by mouth. None of the usual antispasmodic drugs have any effect. Morphine gr. 1/3 gives relief, but her condition after the injection is alarming. She becomes deeply cyanosed and foams at the mouth. If I do not give morphine she gets no relief.*

A.—This is not an uncommon problem and it is sometimes due to the patient's postponing treatment till the attack is well established. The results with adrenaline may be improved by periods of continuous administration, subcutaneously, at the rate of 1 minim a minute for half an hour or so. Inhalation of a 1% solution of adrenaline is also sometimes effective. If adrenaline fails, aminophylline is the drug of choice; it may be given by mouth (up to 9 to 12 gr. daily, starting with a small dose and carefully working up); or intravenously (an ampoule of 0.24 g. in 10 c.cm., injected very slowly). An intravenous injection of a mercurial diuretic—e.g., inj. mersalyl *B.P.* 0.5 to 2 c.cm.—may also be tried. General measures should not be neglected—kapok pillow, sponge-rubber mattress, removal of carpets, hangings, and other dust-producing agencies. Massage and respiratory exercises may be effective, particularly if they are combined with psychological treatment by suggestion and persuasion that the patient can overcome the spasm.

### Frigidity after Childbirth

*Q.—I have twice recently been consulted by young couples troubled by what might perhaps be termed secondary frigidity. The story is identical in either case. Following the birth of the first child after little more than a year of marriage, there has been no resumption of sexual intercourse on account of the distaste felt by the wife. In both cases the wife, previously eager for and satisfied by intercourse, is now strongly averse to coitus or even to preliminary love play, and is worried by this aversion, which has now lasted for 6 and 9 months respectively. In neither case is there any obvious psychological basis. Both couples are very "happily married." Is this a recognized syndrome? Is there any endocrine or other treatment advisable?*

A.—This is a recognized psychological syndrome, and is not endocrinological. The fact that the patient is worried by the aversion to coitus suggests that the real cause is subconscious, and that the patient's attitude to further coitus in the circumstances described is ambivalent. Each case has its psychological background. Not infrequently psycho-analysis reveals that the patient both desires and resents motherhood, and especially the passing from the phase of the idealized bride to the more prosaic mother figure, with the possible resulting danger of losing the man's love. This may be thought more probable with multiple pregnancies, and is, in fact, sometimes the case. At the same time the woman loves the man very much, and is therefore disturbed by the conflict. Contraception, even if 100% reliable, which it is not, is an inadequate answer. Many cases respond to a few talks given by a doctor with some psychological insight. Others require more extensive psychotherapy.

### Warts

*Q.—For more than a year I have, without much success, been treating my little girl aged 10 for a wart on her knee. The skin of the knee is rather horny and the position of the wart such that it is constantly rubbed by the edges of frocks, coats, etc. I would be glad of suggestions as to treatment.*

A.—Allow the wart to grow and then treat with 3% watery solution of formalin, in the following way: The surrounding skin must be protected by vaseline and the solution brought into contact with the wart on cotton-wool, held in forceps or on a stick, for 15 minutes daily.

### Peas and Intestinal Flatus

*Q.—Why does a diet of peas cause intestinal flatus? How can they be cooked or treated so as to be free from this defect? What gas is evolved in the intestine? What treatment is effective for flatus so caused?*

A.—Peas, like beans and lentils, are relatively rich in protein and carbohydrate, but they are not well digested because the food material is enclosed in cells with cellulose walls which resist digestion. Moreover, the cellulose and the associated bulkiness of peas when cooked stimulate peristalsis, so that the chyme is swept into the large intestine before complete digestion has taken place. These disadvantages can be overcome to some extent by prolonged soaking of dried peas or by the use of pea flour. Usually the flatulence is the result of fermentation of the undigested carbohydrate of the peas in the large intestine and the release of $CO_2$, methane, and small amounts of hydrogen. Fermentation of the protein will also give rise to $CO_2$, together with $H_2S$ and mercaptans, which are evil-smelling compounds. In addition, intestinal gas always contains a fairly high proportion of nitrogen. The only effectual preventive of flatus so caused is to avoid eating peas.

### Action of Digitalis

*Q.—In discussing the action of digitalis in congestive heart failure, a modern American textbook (Goodman and Gillman—"The Pharmacological Basis of Therapeutics") places prime importance on the direct action of the drug on the heart muscle. Beneficial results are said to be due to increased force of contraction, which together with more complete emptying and filling of the ventricle leads to increased cardiac output. Primary vagal effects are not considered to be important, and the cardiac slowing which occurs is said to be mainly reflex through the vagus as a result of restoration of compensation. Is this teaching in keeping with modern British views?*

A.—It is sufficient comment on the views of the book mentioned to point out that, in the whole discussion of the use of digitalis in the treatment of heart disease, the names of Mackenzie and Lewis receive only one passing mention in small type. Nevertheless it is true that modern British views are changing. Mackenzie and Lewis's work led to the conclusion that digitalis was useful only in auricular fibrillation, and then because of its depression of conduction in the bundle of His and of its stimulation of the vagal centre. It is now increasingly realized that digitalis has a beneficial action on heart muscle in congestive failure where there is no disorder of rhythm. Fraenkel's work on strophanthin (*Lancet*, 1935, **2**, 1101) emphasized this. He showed the rapid loss of oedema in patients with normal rhythm which followed the administration of strophanthin intravenously.

### Vaginal Discharge after Hysterectomy

*Q.—A patient who had a hysterectomy for multiple fibroids about four months ago has had a most persistent and offensive vaginal discharge since; there was no evidence of malignancy. The patient's general condition is good. She is on stilboestrol daily. I have tried various remedies, and should be grateful for any suggestions to relieve this condition.*

A.—Vaginal discharge after a total hysterectomy is fairly common. If silk has been used to ligature the uterine vessels infection may cause suppuration for a long time. If a large raw area has been left in the pelvis and becomes infected, persistent purulent discharge will result. Sometimes granulations form along the scar in the vaginal vault. These can be cured by cauterization with silver nitrate. If both ovaries were removed it is possible that a trichomonas infection has been lighted up. The case should be investigated along these lines and an accurate diagnosis made. As a general rule it can be said that the prognosis is good and there is no cause for anxiety.

### Congenital Deaf-mutism

*Q.—I have a woman patient whose parents suffer from congenital deaf-mutism. She herself is perfectly healthy and has no disturbance of speech or hearing. She is now pregnant. What will be the outlook for her child with regard to deaf-mutism?*

A.—Congenital deaf-mutism is usually due to a recessive factor. This means that an affected person must carry two abnormal genes; and so it follows that the union of two affected persons would be expected to yield deaf children only (see answer in the *Journal* of April 1, 1944, p. 481, and the amendment on April 8, p. 512). This has not happened in the present instance. Perhaps the deafness in one parent is non-hereditary, or possibly the genes concerned may be different. In view of this uncertainty no calculation of odds can be made. Whatever the true explanation may be, however, the patient can be reassured that the chances are heavily in favour of the child having normal hearing and speech.

## INCOME TAX

### Income from New Zealand

G. M. has investments in New Zealand, income being taxed there at the source.

*** The income is liable to United Kingdom tax in spite of having already been taxed in New Zealand, but substantial relief is given from the full rate of United Kingdom tax. The inspector of taxes will require information and evidence as to precisely what tax has been paid in New Zealand. Liability attaches to income "arising" abroad, and does not depend on whether or not the income is remitted to this country. If, however, payment of tax before receipt of the income is a matter of hardship, it may be possible to arrange for the tax to stand over until the income is remitted.

# LETTERS, NOTES, ETC.

### Training in Electro-encephalography

Dr. F. GOLLA, F.R.C.P.., Director of the Burden Neurological Institute (Stoke Lane, Stapleton, Bristol) writes: Owing to the recent development of electro-encephalography many institutions are requiring technicians trained to take charge of the apparatus. It is proposed to give to approved students at the Burden Neurological Institute a three-weeks course which will cover the field of work considered to be necessary by the Electro-encephalographic Society. Students who have made satisfactory progress will be given a certificate of proficiency.

### Sterilization of Syringes

Dr. H. S. GASKELL (Stowmarket, Suffolk) writes in the course of a letter: Forty years ago the syringe was seldom used by the G.P., and I found myself adequately equipped by possessing a 1-c.cm. instrument which I boiled for an occasional hypodermic of morphine. A few years ago, however, I found that I was continually having to add to my collection of varieties and sizes. I became bored with the daily job of boiling two or three syringes, and, besides grudging the time it took, I was convinced that constant boiling did them no good. My subsequent experiments were as follows: (1) Methylated spirit. I kept them in a bowl of this, but found that it quickly evaporated, and was not persuaded that even the modicum of spirit remaining in the syringe harmonized well with either the medicament injected or my patient's tissues. (2) Hard tap-water boiled and filtered to remove chalk. Separating pistons from barrels, I boiled them up about twice a week and kept them in the enamelled bowl in which they were boiled. Needles and metal rusted and became discoloured. (3) Hard tap-water with glycerin was better, but itself turned brownish after a few boilings. (4) I have since adopted the solution mentioned in the *Journal* of Nov. 20, 1943 (p. 666)—i.e., borax 1.5 g., formalin 2.5 c.cm., phenol 0.4 c.cm., aq. dest. ad 100 c.cm. Enough of this is poured into a perpendicular-sided white-enamelled photographic dish 10 in. by 8 in. by 2 in. deep to cover the largest syringe used (in my case 20 c.cm.), and this is kept covered with a similar dish. Before using a syringe I squirt out all the solution, and then draw the syringe up and down, with needle, in a bowl of boiled glycerinated water kept standing next to it, also kept covered. So far this has given perfectly satisfactory results, and the syringe markings do not disappear as they do when subjected to boiling and other methods. There is no rusting. I have abandoned the use of a 1-c.cm. syringe as I found that it barely admits 1 c.cm., and in the case of some injections—e.g., coramine—will not contain the whole ampoule, which is 1.2 c.cm. Both of the above liquids have to be periodically filtered to remove blobs of oil floating in them from oily injections. Four or five years ago I pointed out to one manufacturer that no ordinary calibred needle would suck up oil, and suggested that a large non-pointed "needle" should be supplied with each syringe with which to fill it with the oily fluid, this being replaced with one almost down to hypodermic size for injection. A year later I noticed that these came on to the market, and I always use one for oil. At home the 2-c.cm. syringe is probably the one most often used. All syringes should be of the same calibre nozzles. In my bag I carry a 10-c.cm. syringe wrapped up with needle in a piece of boric lint for use on people in their homes. It is easy to train patients to have a covered basin of boiled water ready for you on the days they expect you, in which to wash out the instrument before and after use. Some may say that this is too rough and ready, and does not "sterilize" the syringe, but I have never had a hypodermic, an intravenous, or an intramuscular injection go septic in my life. The above remarks do not apply to intravenous syringes and needles, which I always boil.

### Vaccination against Smallpox

Capt. J. S. DALTON, I.M.S., writes: I hope I may be forgiven for finding the question of vaccination against smallpox still a little confusing, despite your admirable reply to Dr. Weatherhead (April 15, p. 538) on that subject. You write: "Collected data about smallpox in vaccinated persons indicate that the degree of protection is proportionate to the area of scarring." The following points do not seem to bear this out. It is difficult to believe that in primary vaccination the immunity resulting from 1/4 in. incision, with its attendant classical dermal lesion and constitutional symptoms, should be any less than that to be expected from a 1/2 sq. in. method; and, in fact, the dermal response to subsequent vaccinations in the two groups does not differ. It is now well established that in persons who have never contracted smallpox vaccination will always "take," even if in a modified form, despite any number of previously successful insertions. Furthermore, it can be shown quite easily that this phenomenon occurs irrespective of the number of incisions used in the process of inoculation. The immunity conferred by vaccination is clearly never complete, whichever method is used. I do not know of any published work on the blood immunity reactions after vaccination for smallpox which would tend, by the results of direct experiment, to support the view you have expressed. From a clinical point of view it should be possible during an epidemic to come to a reasoned conclusion by noting the incidence and severity of the disease in groups of patients and contacts classified according to the degree of scarring. The reliability of this method, however, cannot be considered high, since it is difficult adequately to assess the relative importance of other contributory factors such as malnutrition, degree of exposure, and the degree of virulence of the organism in each case. While, therefore, it might be considered safer to use a "4-incision" vaccination method during an epidemic of variola major, I would be most interested to hear details of the scientific evidence in favour of that practice.

### Red Hair and Rheumatism

Dr. J. V. C. BRAITHWAITE (Leicester) writes: In the *Journal* of July 1 (p. 33) your commentator, writing of the belief that red-haired persons are more susceptible to rheumatism than others, suggests that further investigation would be worth while. The following figures may be of interest in this connexion. Of the 91 new patients attending the Leicester Education Committee's Rheumatism Clinic in 1943, 4 had definitely red hair and 5 had a rufous tinge. Of 121 children in the Children's Hospital of the Leicester Royal Infirmary in February and March, 1944, none of whom were rheumatic, 1 had red hair and 19 had a rufous tinge. These figures are too small to be significant, but at least they suggest that a rufous tinge to the hair does not indicate a predisposition to rheumatism. Perhaps if other physicians in charge of rheumatism clinics were to communicate similar figures it would be possible to settle the question of the susceptibility of red-haired persons to this group of diseases.

Dr. F. C. EVE (Hull) writes: On page 33 of your issue of July 1 the question is asked whether—as many believe—the red-haired are specially liable to acute rheumatism. The answer given is that evidence is scanty and contradictory and that investigation is needed. For about 30 years, whenever I saw a red-haired child in our hospital beds (medical or surgical), I have asked for the diagnosis. In a striking majority the reply has been rheumatism or tubercle. In my own red-haired cases I have (later) inquired about their other infections, such as tonsillitis, coryzas, otorrhoea, sinusitis, etc. I have formed a strong clinical suspicion that red hair is a danger flag announcing that immunity against germ diseases in general is subnormal, even though the general health may be good. Hence I would suggest that investigators—instead of counting the red-heads in a large number of acute rheumatisms, as suggested—should compare the incidence of infections in a large number of red-haired children with controls of similar age groups. If the red-haired have actually a low general immunity the reason for their survival should also be illuminating, when discovered. Have they been more desirable and desirous, and thus enjoyed a compensating fertility? Ought insurance companies to ask if the hair is red?

### Hirsutism in Women

Dr. CLIFFORD ALLEN (London, W.1) writes: Regarding the question in the "Any Questions?" column (July 1, p. 34) regarding hirsutism in women, might I suggest that it would probably be helpful for your correspondent to read the monograph, *The Adrenal Cortex and Intersexuality*, by Broster *et al.*, published in 1939 by Chapman and Hall. In this book I pointed out that it is by no means unusual for women suffering from adrenogenital virilism to complain of reduced sexuality, and this is restored to normal after adrenalectomy.

### Why Tie the Cord?

"M.D." writes from Birmingham: Some years ago I was called by a nurse to see a baby whom I had delivered a few hours before. The nurse was a qualified midwife and had been sister-in-charge of a maternity home where many pupil midwives were trained. She had tied the cord but had delayed washing it for some time. When she came to do so she found the baby blanched and saturated with blood. I sent it into hospital with a view to transfusion, but it died. The father afterwards blamed me, and said he had been told that I ought to have "stitched the navel" and not tied the cord. I must have seen haemorrhage from the cord at some other time, for I had a habit of taking the ends of the ligature round the cord again and making another ligature, thus enclosing a part of the cord between two ligatures. Or perhaps I had noticed how many nurses seem to be incapable of making reef knots.

### An Old Midwives' Tale

Dr. LEO GRUNIS (Peckham, S.E.) writes: Dr. Norman Goorney (June 10, p. 802) is under a misapprehension. The Talmudists were not quite sure about the non-viability of an eight-months baby. This was a non-Jewish teaching. So taught Hippocrates and Galen. Aristotle was of different opinion. See for more information on this subject: *Biblish Talmudishe Medizin*, by Dr. Preuss. Rashi was not a physician, but a commentator of the Bible and Talmud.